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OHIO UNIVERSITY BULLETIN

The Graduate College



OHIO UNIVERSITY
ATHENS, OHIO

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OHIO UNIVERSITY

THE GRADUATE COLLEGE

Cutler Hall

VERNON R. ALDEN, M.B.A., LL.D. ----- *President of the University*

DONALD R. CLIPPINGER, Ph.D., LL.D. ----- *Dean of the Graduate College*

PAUL R. MURPHY, Ph.D. ----- *Assistant Dean of the Graduate College*

CAROLYN CLUTTER, M.Ed. ----- *Secretary of the Graduate College*

THEDA RIEMANN, B.S. in Bus. Adm. ----- *Secretary to the Dean of the Graduate College*

ROBERT E. MAHN, A.M. ----- *Registrar*

Ewing Hall

THE GRADUATE COUNCIL

DONALD R. CLIPPINGER, Ph.D., LL.D., *Dean, Graduate College*, Professor of Chemistry, *chairman*; PAUL R. MURPHY, Ph.D., *Assistant Dean*, Professor of Classical Languages, *secretary*; PAUL A. GAMES, Ph.D., Associate Professor of Psychology; SAMUEL I. HICKS, Ed.D., Professor of Education; LESTER C. MILLS, Ed.D., Associate Professor of Education; WILLIAM W. PAUDLER, Ph.D., Assistant Professor of Chemistry; FRED PICARD, Ph.D., Professor of Economics; ROGER C. QUISENBERY, Ph.D., Professor of Electrical Engineering; GILBERT A. STEPHENSON, Ed.D., Associate Professor of Music Education; EDGAR W. WHAN, Ph.D., Associate Professor of English; GORDON WISEMAN, Ph.D., Associate Professor of Dramatic Art and Speech; WARREN A. WISTENDAHL, Ph.D., Associate Professor of Botany.

PICTURES IN THE BULLETIN

(*In order of appearance*)

The Class Gateway

The Edwin Watts Chubb Library

Research in Chemistry

The Helen Mauck Galbreath Memorial Chapel

The John Calhoun Baker University Center

Research in Engineering

An East Green Dormitory

Campus Lecturer Arnold Toynbee talks with Students

CALENDARS FOR 1964-1965 AND 1965-1966

1964-1965

THE 1964 SUMMER SESSION

Tentative dates: first term June 15 to July 17; second term July 20 to August 22. For complete announcements see the Summer Session Bulletin.

FIRST SEMESTER 1964-1965

1964

| | |
|----------------|---|
| Sept. 15 Tues. | Registration for students who did not pre-register. |
| Sept. 16 Wed. | Classes begin. |
| Sept. 28 Mon. | Last day for registering for the semester. Last day to apply for admission to candidacy for a master's degree on January 30. |
| Oct. 3 Sat. | Last day to add course by change order. Last day to withdraw from a course. |
| Oct. 5 Mon. | Last day for filing application with payment of fee for graduation on January 30. |
| Oct. 10 Sat. | Last day for partial refund of registration fees to students who withdraw. |
| Oct. 24 Sat. | Last day for removing incomplete grades incurred during last session in residence. |
| Nov. 25 Wed. | Thanksgiving recess begins at noon. |
| Nov. 30 Mon. | Classes resume with first scheduled class. |
| Dec. 2 Wed. | Advising for second semester; classes dismissed. Last day for Ph.D. candidates to present approved dissertation in form for final editing to Graduate College office. |
| Dec. 11 Fri. | Last day for all master's degree candidates to take comprehensive examination on major course work. Last day for master's degree candidates to present approved thesis in form for final editing to Graduate College office. |
| Dec. 16 Wed. | Christmas recess begins after last class. |
| 1965 | |
| Jan. 4 Mon. | Classes resume with first scheduled class. |
| Jan. 21 Thurs. | Last day of classes. Last day for degree candidates to take oral examination on thesis or dissertation. |
| Jan. 22 Fri. | Examinations begin. |
| Jan. 25 Mon. | Theses and dissertations due in library and abstracts due in Graduate College office. |

| | | |
|---------|--------|--|
| Jan. 27 | Wed. | Candidates' grades due in registrar's office by 4:00 p.m. |
| Jan. 28 | Thurs. | Examinations end. |
| Jan. 30 | Sat. | Semester closes; commencement. |

SECOND SEMESTER 1964-1965

| | | |
|---------|--------|---|
| Feb. 1 | Mon. | Semester opens. |
| Feb. 3 | Wed. | Registration for students who did not pre-register. |
| Feb. 4 | Thurs. | Classes begin. |
| Feb. 15 | Mon. | Last day for registering for the semester. Last day to apply for admission to candidacy for a master's degree in June. |
| Feb. 20 | Sat. | Last day for adding course by change order. Last day to withdraw from a course. |
| Feb. 22 | Mon. | Last day for filing application with payment of fee for graduation on June 6. |
| Feb. 27 | Sat. | Last day for partial refund of registration fees to students who withdraw. |
| Mar. 13 | Sat. | Last day for removing incomplete grades incurred during last session in residence. |
| Mar. 27 | Sat. | Spring recess begins after last class. |
| Apr. 5 | Mon. | Classes resume with first scheduled class. |
| Apr. 13 | Tues. | Last day for Ph.D. candidates to present approved dissertation in form for final editing to Graduate College office. |
| Apr. 20 | Tues. | Last day for master's degree candidates to present approved thesis in form for final editing to Graduate College office. |
| Apr. 27 | Tues. | Last day for master's degree candidates to take comprehensive examination on major course work. |
| May 25 | Tues. | Last day of classes. Last day for degree candidates to take oral examination on thesis or dissertation. |
| May 26 | Wed. | Reading and review day; advising for September. |
| May 27 | Thurs. | Examinations begin. |
| May 31 | Mon. | Memorial Day holiday. |
| June 1 | Tues. | Theses and dissertations due in library and abstracts due in Graduate College office. |
| June 2 | Wed. | Candidates' grades due in registrar's office by 2:00 p.m. |
| June 3 | Thurs. | Examinations end. |

1965-1966
THE 1965 SUMMER SESSION

Tentative dates: first term June 14 to July 16; second term July 19 to August 21. For complete announcements see the Summer Session Bulletin.

FIRST SEMESTER 1965-1966

| 1965 | | |
|----------|--------|---|
| Sept. 14 | Tues. | Registration for students who did not pre-register. |
| Sept. 15 | Wed. | Classes begin. |
| Sept. 27 | Mon. | Last day for registering for the semester. Last day to apply for admission to candidacy for a master's degree on January 29. |
| Oct. 2 | Sat. | Last day for adding course by change order. Last day to withdraw from a course. |
| Oct. 4 | Mon. | Last day for filing application with payment of fee for graduation on January 29. |
| Oct. 9 | Sat. | Last day for partial refund of fees to students who withdraw. |
| Oct. 23 | Sat. | Last day for removing incomplete grades incurred during last session in residence. |
| Nov. 24 | Wed. | Thanksgiving recess begins at noon. |
| Nov. 29 | Mon. | Classes resume with first scheduled class. |
| Dec. 1 | Wed. | Advising for second semester; classes dismissed. Last day for Ph.D. candidates to present approved dissertation in form for final editing to Graduate College office. |
| Dec. 10 | Fri. | Last day for all master's degree candidates to take comprehensive examination on major course work. Last day for master's degree candidates to present approved thesis in form for final editing to Graduate College office. |
| Dec. 16 | Thurs. | Christmas recess begins after last class. |
| 1966 | | |
| Jan. 3 | Mon. | Classes resume with first scheduled class. |
| Jan. 20 | Thurs. | Last day of classes. Last day for degree candidates to take oral examination on thesis or dissertation. |
| Jan. 21 | Fri. | Examinations begin. |
| Jan. 24 | Mon. | Theses and dissertations due in library and abstracts due in Graduate College office. |
| Jan. 26 | Wed. | Candidates' grades due in registrar's office by 4:00 p.m. |

| | | |
|---------|--------|--------------------------------|
| June 6 | Sun. | Commencement. |
| Jan. 27 | Thurs. | Examinations end. |
| Jan. 29 | Sat. | Semester closes; commencement. |

SECOND SEMESTER 1965-1966

| | | |
|---------|--------|---|
| Jan. 31 | Mon. | Semester opens. |
| Feb. 2 | Wed. | Registration for students who did not pre-register. |
| Feb. 3 | Thurs. | Classes begin. |
| Feb. 14 | Mon. | Last day for registering for the semester. Last day to apply for admission to candidacy for a master's degree on June 5. |
| Feb. 19 | Sat. | Last day for adding course by change order. Last day to withdraw from a course. |
| Feb. 21 | Mon. | Last day for filing application with payment of fee for graduation on June 5. |
| Feb. 26 | Sat. | Last day for partial refund of registration fees to students who withdraw. |
| Mar. 12 | Sat. | Last day for removing incomplete grades incurred during last semester in residence. |
| Mar. 26 | Sat. | Spring recess begins after last class. |
| Apr. 4 | Mon. | Classes resume with first scheduled class. |
| Apr. 12 | Tues. | Last day for Ph.D. candidates to present approved dissertation in form for final editing to Graduate College office. |
| Apr. 19 | Tues. | Last day for master's degree candidates to present approved thesis in form for final editing to Graduate College office. |
| Apr. 26 | Tues. | Last day for master's degree candidates to take comprehensive examination on major course work. |
| May 24 | Tues. | Last day of classes. Last day for degree candidates to take oral examination on thesis or dissertation. |
| May 25 | Wed. | Reading and review day; advising for September. |
| May 26 | Thurs. | Examinations begin. |
| May 30 | Mon. | Memorial Day holiday. |
| May 31 | Tues. | Theses and dissertations due in library and abstracts due in Graduate College office. |
| June 1 | Wed. | Candidates' grades due in registrar's office by 2:00 p.m. |
| June 2 | Thurs. | Examinations end. |
| June 5 | Sun. | Commencement. |

THE UNIVERSITY

Ohio is a state-assisted university. Its more than 10,000 men and women students have available to them in a compact campus setting the finest in instructional, residential, cultural, and recreational facilities.

Home of the University in scenic southeastern Ohio is Athens, a city of 17,000. Athens is conveniently accessible by automobile on U.S. Routes 33 and 50 and State Route 56. It is on the main Baltimore-St. Louis route of the Baltimore and Ohio Railroad. North and south bus service is provided by the Lake Shore System and Trailways; east and west service by Greyhound.

Ohio University has a rich heritage. Considered its co-founders are Dr. Manasseh Cutler of Ipswich, Massachusetts, and General Rufus Putnam of Rutland, Massachusetts. It was Cutler who in 1787 signed the Ohio Company's contract with Congress for the purchase of land in the Northwest Territory. The contract set aside two townships of land in the center of the purchase tract as the gift of the United States Government for the founding of a University. It was adding reality to Cutler's words which had been incorporated in the Ordinance of 1787 for the government of the Northwest Territory: "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools, and the means of education shall forever be encouraged." It was Putnam who in 1799, after delay caused by the Indian Wars, laid out the town of Athens and the College Green. On March 1, 1803, Ohio, the first of five states to be formed from the Northwest Territory, entered the Union, and on February 18, 1804 its Legislature provided for the establishment of "an University—in the town of Athens—by the name and style of The Ohio University." Thus Ohio University became the first institution of higher learning in the Northwest Territory and the vast region beyond. It has grown with the Nation and the State into a diversified and effective institution of higher education.

ACCREDITATION

Ohio University is accredited by the North Central Association of Colleges and Secondary Schools, and by the recognized professional accrediting associations identified with its major academic divisions. It holds membership in the leading state and national educational and professional associations in its major areas of interest.

FACILITIES AND SERVICES

Graduate students have full use of all University facilities and may avail themselves of all its services.

UNIVERSITY LIBRARIES

The Edwin Watts Chubb Library houses the main collection of more than 340,000 volumes, including periodical sets and documents. The collection is shelved chiefly in the stacks to which all students have access. About 1800 periodicals are regularly received. There are extensive resources of microfilm, microcard, and microprint. The library has a reader-printer, a microfile camera, and a Xerox copier. Fully staffed departmental libraries are maintained for the College of Education and the College of Fine Arts, and specialized collections on a less formal basis are administered in connection with the College of Business Administration, the School of Music, and the Departments of Botany, Chemistry, Geology, Physics, and Zoology. Special collections in the Chubb Library include the valuable J. W. Morgan Collection of historical books in chemistry and other physical sciences, the University's rare book collections, and the University Archives.

HUDSON HEALTH CENTER

The Center includes a complete clinic with X-ray and minor surgery, a 52-bed hospital with an isolation wing, and a physiotherapy department. The staff includes 6 full-time doctors, a part-time psychiatrist, 14 registered nurses, a registered X-ray technician, and a registered laboratory technologist.

The Health Service maintains a continuous record of each student's health, beginning with the family physician's report which is required on admission. A tuberculin skin test is given each new student on admission. All positive skin reactors are given a chest x-ray each year. All negative reactors are urged to be re-tested each year. This provides a means of early detection and protection for the college community.

Group Health Insurance

A plan is available at low cost through the University which pays up to a total of \$5000 for medical expenses. All students are urged to avail themselves of this insurance which is specifically designed to supplement the services of the Hudson Health Center.

BUREAU OF APPOINTMENTS

The Bureau of Appointments, located in Cutler Hall, affords students, former students, and graduates of the University assistance in securing positions in such fields as teaching, business, and industry.

A registration fee of \$2 entitles an applicant to this service while enrolled as a student in the University and for one year after graduation. After the one year period, an additional charge of \$2 a year is made for each year in which assistance is requested.

The Director of the Bureau of Appointments and the office personnel are available to counsel students relative to their vocational plans.

The Bureau maintains and promotes all possible connections with prospective employers for the benefit of persons seeking initial placement and for those looking toward advancement to better positions.

LIVING ARRANGEMENTS

HOUSING: Application for housing is made to the Director of Housing, Ohio University, Athens, Ohio. In University facilities, accommodations are available for twenty women students in Chubb House, Boyd Annex, and Lindley Annex and for thirteen men in Mathews Cottage. Those applying for these facilities must agree to a year's residence and take their meals in the John Calhoun Baker University Center cafeteria. The rental rate is \$144 for each student for a semester; the board charge is \$284 for a semester. A schedule of payments and dates will be forwarded to all residents of University housing facilities.

SINGLE STUDENTS: Rooms in private residences are listed with the Director of Housing and have been inspected and approved by the University. Graduate students are not restricted to the homes on the approved list, but may reside in apartments or residences not approved for undergraduate students. A student renting a room in a private home is expected to remain in the home for one semester unless satisfactory arrangements are made with the householder.

BOARD: Students living in private homes may arrange to eat in the Center cafeteria, but must continue with such arrangements throughout the semester. Such arrangements for board are made in the office of the Director of Housing, Ewing Hall. The cost of board in University halls is \$284 a semester for 21 meals a week. Meals are served throughout the academic year except during the Thanksgiving, Christmas, and spring recesses. Board rates are subject to revision, in accordance with prevailing economic conditions.

The University reserves the right to use any of the rooms in the graduate facilities during the recess periods.

HOUSING FOR MARRIED STUDENTS

NOTE: The apartment and trailer park facilities are provided only for married students and their families.

University facilities for married students include the following:

PERMANENT APARTMENTS: 52 units (equipped with basic furniture, including refrigerator and stove) located on Wolfe Street, adjacent to the University golf course. Rental rates ranging from \$70 to \$110 per month include all utilities. Apartments are also available from private agencies.

BARRACK APARTMENTS: 112 units located on East State Street, approximately two miles from the Green. These apartments consist of a living room, bedroom, kitchen, and bathroom. Each has an abundance of closet space and is equipped with a gas cooking range and a gas circulating heating unit. Tenants must arrange to supply the additional needed articles. Rent of \$42 per month includes all utilities. Veterans are given preference in the assignment of these units.

PREFAB UNITS: 14 units located on East State Street adjacent to the University Airport. Each is equipped with gas cooking range, oil heating unit, kitchen table and chairs, and dresser. The tenant must provide his own studio couch or bed, and refrigerator. Rent of \$30 per month includes gas and water. Veterans are given preference in the assignment of these units.

TRAILER PARK: The University trailer park, accommodating 36 privately-owned trailers, is located on East State Street adjacent to the University Airport. Space rental is \$14 per month, which includes water and sewerage. Toilet, bathing, and laundry facilities are provided for all trailer occupants. The rental charge does not cover electricity.

TRANSPORTATION: Convenient bus service is maintained by the University, on an hourly schedule when classes are in session, at no cost to the occupants of the East State Street area.

Further information about quarters for married students may be obtained from the Director of Housing, Ohio University, Athens, Ohio.

CULTURAL-RECREATIONAL ACTIVITIES AND FACILITIES

SOCIAL POLICY

The students, faculty, and administrative officers of Ohio University and the community of Athens are united in their interest in maintaining a moral tone and a social pattern that is in keeping with good taste and acceptable social practice anywhere among educated people.

THE JOHN CALHOUN BAKER UNIVERSITY CENTER

The Center provides facilities for the cultural, social, and recreational benefit of students. The building contains three beautiful lounges, a large ballroom, dining rooms, cafeteria, snack bar, library and record listening room, television, conference rooms, and recreational areas for bowling, billiards, table tennis, and cards.

RECREATION

Among other recreational facilities of interest to graduate students is the University's Natatorium, the indoor ice-skating rink, its golf course which is adjacent to the campus, and its tennis and handball courts.

Feature motion picture productions are shown three nights each week in Alumni Memorial Auditorium.

Not many miles distant from Athens, and suitable as weekend diversions, are the attractions of four of the state's most scenic areas—Dow Lake, a new lake just east of Athens, within a 2000 acre state park area, which is used by the University for educational and research projects; Lake Hope, in the heart of the Zaleski State Forest; the caves and gorges of the Hocking Park Area; and Burr Oak Lake, near Glouster.

CULTURAL PROJECTS

In addition to bringing many distinguished persons to the campus for limited engagements, the University each year invites one or more guest artists to spend periods of time during which they lecture or appear in recitals and counsel informally with interested students.

The University sponsors a concert series, bringing to the campus internationally-famous instrumentalists and vocalists, symphony orchestras, opera and ballet companies, and chamber music groups. Special arrangements are made for the admission of students.

The Edwin and Ruth Kennedy Lecture Series in 1962-63 brought the following distinguished persons to the campus: Charles Frankel, Robert Kenneth Carr, Margaret Mead, Harold Taylor, Oscar Handlin, Arnold Toynbee, and William O. Douglas.

The College of Fine Arts plans many events of a cultural nature each year. In addition to the numerous concerts and plays which are presented by the students and faculties of the School of Dramatic Art and Speech and the School of Music, the two schools cooperate in campus-wide productions of outstanding musicals.

Since 1943, the School of Painting and Allied Arts has sponsored the Ohio Valley Oil and Water Color Show, a competition open to artists of Ohio, Illinois, Indiana, Kentucky, West Virginia, and Pennsylvania. The University is building a permanent collection of paintings, many of which are purchased from this show. A program of art exhibitions is conducted throughout the year.

The Ohio Valley Summer Theatre, sponsored by the School of Dramatic Art and Speech, produces annually a series of six outstanding plays.

GRADUATE CLUB

Membership in this organization is open to all graduate students. The Club provides social and cultural events for its membership. A nominal dues assessment is charged the members.

HONOR SOCIETIES

Ohio University has chapters of Phi Kappa Phi and the Society of Sigma Xi. The former recognizes scholarly accomplishments of graduate students in all fields of study. The latter honors those in the sciences who have given evidence of outstanding ability in scholarship and research.

THE GRADUATE PROGRAM

The graduate program at Ohio University provides advanced professional training in the area of a student's field of specialization and affords opportunities for the conduct of research and special investigations in these same areas. The program of graduate study should become an initiation into methods of intensive study and research in some selected area of knowledge. It is the objective of the Graduate College to provide its students with a high degree of professional competence.

The degree of Doctor of Philosophy is granted in certain selected and accredited areas of study. At present these are Chemistry, Elementary or Secondary Education, Guidance-Counseling, School Administration, Supervision, English, Fine Arts, Physics, Psychology, Public Address, Radio-Television, Speech and Hearing Therapy, and Student Personnel Services in Higher Education.

Graduate degrees are granted in the following areas:

| | |
|--|---|
| Accounting | *Guidance-Counseling |
| Architecture (minor only) | History |
| Art | Home Economics |
| Art Education | Human Relations |
| Bacteriology | Industrial Arts |
| Botany | Journalism |
| Business Administration | Mathematics |
| Business Education | Modern Languages |
| *Chemistry | Music |
| Classical Languages (minor only) | Music Education |
| Dramatic Art | Painting and Allied Arts |
| Economics | Philosophy |
| *Education, School Administration, and Supervision | Photography |
| Engineering and Technology: | Physical Education and Athletics |
| Chemical, Civil, Electrical, and Mechanical | *Physics |
| *English | *Psychology |
| *Fine Arts | *Public Address |
| Geography (minor only) | *Radio-Television |
| Geology | Sociology and Anthropology |
| Government | *Speech and Hearing Therapy |
| | *Student Personnel Services in Higher Education |
| | Zoology |

*Ph.D. granting areas.

DESCRIPTION OF AREAS OF GRADUATE STUDY

ARTS AND SCIENCES. Qualified students may pursue graduate study leading to the *Master of Arts* degree in one of the following areas of instruction:

Bacteriology, Botany, Chemistry, Economics, English, Geology, Government, History, Human Relations, Mathematics, Philosophy, Physics, Psychology, Modern Languages, Sociology and Anthropology, and Zoology.

The *Master of Science* degree is granted to candidates whose undergraduate preparation provided the Bachelor of Science degree or its equivalent and whose graduate major is in one of the following areas of instruction:

Bacteriology, Botany, Chemistry, Geology, Mathematics, Physics, Psychology, and Zoology.

The *Doctor of Philosophy* degree is granted in Chemistry, English, Physics, and Psychology.

The Computer Laboratory on the first floor of Super Hall houses two digital computers, an IBM 1620 and an LGP-30. Both instruments, with auxiliary equipment, are available for teaching and research.

Radiochemistry and neutron physics laboratories, including a sub-critical reactor, are available for training and research.

The members of the graduate faculty assigned to direct the work of the graduate students have demonstrated their qualifications for this service by their own writing and research.

BUSINESS ADMINISTRATION. Qualified students may pursue graduate study leading to the following degrees:

THE MASTER OF BUSINESS ADMINISTRATION degree provides a broad program of study in each of the functional areas of business. It is not intended to provide extensive specialization in any one field; however, up to 40 per cent of the work in the M.B.A. program may be elected in one of the following fields: Accounting, Economics, Finance, Management, and Marketing-Advertising.

THE MASTER OF ARTS degree with a major in Economics provides work in advanced economic theory leading to positions in business and government in the fields of economic analysis and market analysis.

THE MASTER OF SCIENCE degree with a major in Accounting provides an opportunity for specialized professional preparation in this area. A student with undergraduate background in accounting may complete the degree in one year of advanced study; those whose undergraduate preparation is in other fields may complete the degree in two years.

EDUCATION. Graduate students directing their efforts toward advanced professional training for administrative and teaching positions in the elementary and secondary schools may receive the *Master of Education* degree or the *Doctor of Philosophy* degree. The Master's degree is granted to those completing graduate programs in: Administration, School Supervision, Elementary or Secondary School Teaching, and Guidance-Counseling.

The Doctor's degree is granted to those completing programs in: Administration, Supervision, Guidance-Counseling, Elementary Education, and Student Personnel Services in Higher Education.

The Center for Educational Research and Service is designed to make available the resources of the College of Education and of the University to educational workers—teachers, administrators, and supervisors. These resources are also available to boards of education and to the public in communities served by Ohio University.

The resources of the Center for Educational Research and Service and the projects which it conducts offer opportunities for graduate students in the use of these practical materials and in participation in field studies of realistic school problems.

FINE ARTS. The degree Doctor of Philosophy is granted in Public Address, Speech and Hearing Therapy, Radio and Television, and Fine Arts. The degree Master of Fine Arts may be granted to graduate students who major in one of the following areas of study.

DRAMATIC ART AND SPEECH. The program of dramatic art and speech is centered in the new Speech and Theatre Building, equipped with modern facilities for the University Theatre, the University Speech and Hearing Clinic, the radio station—WOUB—AM and FM, television station, and special rooms for the forensics program. Graduate students may participate in production, directing, technical work, costuming, make-up, house-management, or promotion of the presentations of the University Theatre.

Graduate students in speech therapy acquire firsthand experience in working with all types of defective speech in both the university clinic for students and in the children's clinic. Mature students may be given some supervisory responsibility.

An extensive program of first-year debating and varsity inter-collegiate debating for both men and women, together with inter-collegiate contests in oratory and interpretation, provides ample opportunities for graduate students in public address to gain practical experience in the direction of a forensics program.

FINE ARTS. The Doctoral program in Fine Arts stresses the inter-relationship of major art forms through a sequence of comparative studies pointing toward a synthesis of knowledge and understanding in the Fine Arts. Students trained at the level of the master's degree in the studio or in practical aspects of one of the particular arts will utilize this training as a minor area of study in the doctoral program.

MUSIC. The School of Music offers the degree of *Master of Fine Arts* or *Master of Education*. For the degree of *Master of Fine Arts* the major field may be in theory and composition, music literature, music education, or applied music (voice, piano, violin, cello, brass, and woodwind). The *Master of Education* degree may be granted to those majoring in music education.

PAINTING AND ALLIED ARTS; PHOTOGRAPHY. The graduate program leading to a Master of Fine Arts degree with a major in painting or allied arts requires the completion of at least 48 semester hours including credit for research and thesis.

JOURNALISM. The *Master of Science* degree is granted graduate students in this area. The Ohio University School of Journalism is one of a select group of schools or departments of journalism that have been accredited by the American Council on Education for Journalism. Journalism has five areas or sequences available for graduate study leading to the Master of Science degree: *advertising-management, magazine journalism, news writing and editing, public relations, and radio-television news.*

The School of Journalism has its own complete laboratory facilities and also has access to the offices and equipment of the independently-owned daily, *The Athens Messenger*. United Press wire service, an AM and FM radio station, a television studio, type laboratory, dark rooms, an offset press, and engraving plant are a part of the university equipment available.

INDUSTRIAL ARTS. The basic objective of this department is to serve teachers who desire to upgrade their work by more intensive study in the field of industrial arts. The graduate courses have been developed to give the latitude necessary to meet the variations in undergraduate preparation and in the student's professional objectives. Students in this area become candidates for the *Master of Education* degree.

ENGINEERING AND TECHNOLOGY. Programs of graduate study leading to the *Master of Science* degree in chemical, civil, electrical and mechanical engineering are available.

HOME ECONOMICS. The School of Home Economics offers a broad and extensive program in home economics and related fields leading to the *Master of Science* or *Master of Education* degrees. Major work at the graduate level is offered in four fields—*home economics education, foods and nutrition, textiles and clothing, child development and family life* including nursery education.

PHYSICAL EDUCATION AND ATHLETICS. The graduate student in physical education has optional plans of study. Plan A includes 27 semester hours of course work plus a thesis. Plan B is 32 semester hours of course work including a 3 hour research seminar.

PLAN A. A graduate student may work toward either the *Master of Science* or *Master of Education* in Physical Education, depending on his background of preparation and program of graduate study.

Students who elect graduate study in physical education and the related subjects of health education and recreation may combine these interests into a major of 12 to 16 course hours and a thesis. One or two other areas will be associated with this major to complete 27 course hours plus the thesis.

Associated areas or minors may be selected from related graduate course offerings in the University with the understanding that a minimum of 6 or more hours of prerequisite study are usually required before graduate study is permitted.

The following minors are commonly selected: educational administration, counseling and guidance, history, human relations, social science, biological science, psychology, or industrial arts. The student electing to follow Plan A leading to the M.S. or M.Ed. degree will comply with the requirements outlined on page 24.

PLAN B. Plan B permits the graduate student to work toward the *Master of Education* degree. This plan is available under the same requirements as Plan A, except for the following provisions:

1. The student must be approved for the program by the committee on graduate study in physical education. This approval is given only if, after a review of the student's educational aims and interests, the program seems to fit his needs.
2. The student will complete a minimum of 32 semester hours of credit for the degree. Within this program 16 to 20 course hours are taken in his major field. One or two other areas will be associated with this major to complete the required hours.
3. A seminar research course is required. The student will develop a problem in health education, physical education, recreation, athletics, or a related area. The written report of the problem must conform with the "Format for Theses and Dissertations" which is available in the Graduate College office.
4. The student must pass a written comprehensive examination based on the courses taken in his major field of study. This examination is taken as directed by the major department approximately four weeks prior to the conferring of the degree.

YEAR-ROUND STUDY OPPORTUNITIES

The sessions of the University consist of two eighteen-week semesters and a summer session of two five-week terms. Students should be admitted at least three weeks in advance of each of these sessions or terms, and degrees are awarded at their close. Many students find it advantageous to register for all sessions which provides the opportunity for unbroken year-round study and research. The graduate assistant has the added opportunity of study with waiver of the general registration fee during the summer sessions immediately preceding and following the period of his regular appointment. Some graduate appointments and scholarships are available in the summer session as well as in the regular academic year.

FEES

REGISTRATION FEES

Payment of all assessed fees at the times designated is prerequisite to official enrollment. Checks and money orders should be drawn in favor of Ohio University in the exact amount of the fees. Post-dated checks are not acceptable. Checks not paid on presentation to the bank will automatically cancel any receipts given and result in assessment of penalties.

At a slight additional expense, the payment of the basic charges may be spread over the four month period, August to November, for the first semester, and February to May for the second semester. Election of this payment plan must be made in advance. Students who wish to elect the plan should request the pamphlet on fee equalization.

Ohio University reserves the right to make, without prior notice, any fee adjustments that may become necessary.

| | Resident of Ohio | Non- Resident |
|--|---------------------|------------------|
| Matriculation Fee (nonreturnable) | | |
| Required of every student on first enrollment in the University _____ | \$ 10.00 | \$ 10.00 |
| The Semester: | | |
| Comprehensive fee for load of 12 to 16 hours, inclusive | 225.00 | 425.00 |
| Includes the general registration fee, the student activity fee; student service fees such as health, library, and testing; and course and laboratory fees. Excludes fees for private instruction, as in music, which are listed in the course descriptions. | | |
| Fee for each hour load of 7 to 11 hours, inclusive | 20.00 | 38.00 |
| Fee for each hour for load of 1 to 6 hours, inclusive | 18.00 | 35.00 |
| The fee for 1 to 6 hours does not carry with it the privilege of a student activity card or the use of the Health Service. | | |
| Auditors pay fees in full as above. | | |
| The Summer Session: | | |
| Fees are proportionate amounts of the semester fees. See Summer Session bulletin for details. | | |
| Extension Class: | | |
| Registration fee, each semester hour _____ | 15.00 | 30.00 |
| Fee is increased if class is organized with an enrollment below the required quota. | | |

REFUND OF FEES. Voluntary and official withdrawal from the University entitles the student to a refund of 80 per cent of the comprehensive fee if he withdraws within the first or second week of a semester, and 50 per cent if he withdraws within the third or fourth week. A week is interpreted to mean a calendar week and ends at noon on Saturday. Refunds are issued thirty days after the date of withdrawal.

If a student withdraws from the University before he pays his registration fees or before he completes the payment of his registration fees, he is considered indebted to the University for the amount determined according to the refund regulations.

MISCELLANEOUS FEES

| | |
|---|---------|
| Admission Application filing fee ----- | \$ 5.00 |
| Change of course ----- | 2.00 |
| Duplicate official forms, fee receipts, grade report, etc. ----- | 1.00 |
| Examination for advanced standing, each semester hour ----- | 5.00 |
| Graduation— | |
| Application for degree ----- | 15.00 |
| Re-application ----- | 5.00 |
| Penalty for late application ----- | 5.00 |
| Diploma mailing fee for those excused from commencement ----- | 2.00 |
| Late registration or late payment of fees—\$3.00 Minimum, \$10.00 Maximum | |
| Microfilming fee, required of Ph.D. candidates ----- | 25.00 |
| Thesis and Dissertation Editing and Abstract Printing ----- | 5.00 |
| Thesis and Dissertation Binding, Each copy ----- | 3.75 |
| Transcript of record, after first transcript request ----- | 1.00 |
| Group requests of five to ten copies, \$5.00; up to twenty copies, \$10.00 | |

FINANCIAL AIDS

GRADUATE ASSISTANTSHIPS AND FELLOWSHIPS. A number of graduate assistantships and fellowships are available in the Graduate College of Ohio University. Persons receiving these appointments are selected on a basis of merit from students who have received the baccalaureate degree from approved institutions and who wish to pursue work leading to the graduate degree.

Graduate assistantships provide a stipend of \$2,200 to \$2,400 for the academic year of two semesters and waiver of all fees, resident and non-resident, with the exception of a \$40 incidental fee. The graduate assistant is required to give approximately 18 hours of service weekly (six to eight contact hours in laboratory or lecture) to the University, and is permitted to carry 8 to 12 hours of graduate work, the hours in excess of 9 being subject to the approval of the Dean of the Graduate College and the chairman of the department in which the student is serving as an assistant.

The general registration fee will also be waived during the summer sessions directly preceding and following the period of a graduate assistant's appointment.

A graduate assistant continuing study for a second year is eligible for a second appointment to the assistantship. The assistant who has completed two semesters of service with an exceptionally good record may, on the recommendation of his department, be reappointed for a second year at an increased stipend with waiver of the fee as noted above. *Reapplication must be made annually.*

Graduate assistantships are usually available to qualified students in the following fields: accounting, bacteriology, botany, business administration, business education, chemistry, dramatic art and speech, economics, education, engineering, (including chemical, electrical, mechanical and civil), English, finance, fine arts, geology, German, government, history, home economics, human relations, industrial arts, journalism, management, mathematics, music, painting and allied arts, philosophy, photography, physical education, physics, psychology, romance languages, sociology, and zoology.

A number of teaching fellowships in chemistry, education, English, fine arts, physics, psychology, public address, and speech therapy leading to the doctorate are awarded to persons in advanced graduate study who have completed the master's degree or its equivalent and who have some teaching experience. The stipends, based upon both experience and teaching responsibility, range from \$2,400 to \$4,200 for two semesters of service with the same provisions for waiver of fees as the graduate assistantships.

Research fellowships are established on the basis of grants-in-aid to the University for the conduct of research. Appointees to these fellowships must show exceptional aptitude for research. Their obligation involves the promotion of the research program of the department through which the grant is made. Fellows have no instructional service to perform and may normally carry 8 to 12 semester hours of work toward the completion of their graduate program. In general the stipend and waiver of fees will be the same as those of an assistantship.

APPOINTMENTS IN PERSONNEL WORK. Positions are open annually for graduate assistants who will be appointed to assist the Personnel Deans. Stipend and other terms are the same as those of other graduate assistants.

Graduate appointments are also available to married men, with no children, as Heads of Residence in the dormitories for men. The compensation for this service is a furnished apartment and board for the man and wife, a stipend of \$1,200 per year plus the waiver of fees as indicated for the graduate assistant. The Head of Residence will supervise the functions of the dormitory and coordinate the responsibilities of graduate assistants assigned to work with him. He is limited to 9 hours of course work per semester.

Applications for all graduate appointments must be filed with the Dean of the Graduate College by March 1. Application blanks may be obtained from the office of the Graduate College. Appointments are made about April 1.

SCHOLARSHIPS. University scholarships are available to college graduates who have maintained a 3.0 (B) undergraduate average. These permit full-time study and pay the general registration (resident or non-resident) fee. Information may be obtained by addressing the Graduate College, Ohio University, Athens, Ohio.

NATIONAL DEFENSE FELLOWSHIPS. Ohio University has been granted a number of fellowships under Title IV of the National Defense Education Act. Inquiries relative to the provisions and availability of these grants should be directed to the Graduate College office.

AMERICAN BANKERS ASSOCIATION SCHOLARSHIP. The American Bankers Association Foundation for Education in Economics allocates annually a \$250 loan scholarship to the College of Business Administration. This scholarship is awardable to a deserving student of senior or graduate rank whose major course is in banking, economics, or related subjects.

FULBRIGHT OR MARSHALL SCHOLARSHIP. Graduate students who are interested in applying for Fulbright or Marshall Scholarships should consult Mr. Edward Birch, Chairman of the Foreign Study Committee. Application blanks are available in September.

THE HENRY STRONG EDUCATIONAL FOUNDATION LOAN FUND. Ohio University is one of the select colleges and universities which is granted an allotment from The Henry Strong Educational Foundation. Loans up to \$600 for an academic year may be obtained by graduate students under twenty-five years of age who are superior risks on the basis of scholarship, character, and future financial ability. Foundation loans bear an interest rate of 5 per cent per annum.

A person desiring further information or a loan application form should direct his request to the Director of Student Financial Aids, Ohio University, Athens, Ohio.

ADMISSION REQUIREMENTS AND STUDY REGULATIONS

ADMISSION. A student holding a bachelor's degree from an accredited college or university who has attained an undergraduate scholastic point-hour ratio of 2.5 or better on hours attempted, and preferably a 3.0 (B) in the area of the proposed major, will be considered for admission with *regular status* in the Graduate College. (Point-hour ratio is computed on a 4-point system: A—4, B—3, C—2, D—1.) Further supporting evidence of the student's ability in the form of the Graduate Record Examination or other college ability tests and letters of recommendation may also be requested.

A student holding a bachelor's degree from an unaccredited institution or a person whose undergraduate preparation is deficient will be required to supplement his undergraduate record with a satisfactory score on an acceptable standard college ability test.*

A student with a master's degree will be considered for admission to graduate study for the doctorate with the amount of graduate credit accepted, by transfer, subject to review and recommendation by the graduate committee of the department concerned.

* Information regarding these examinations may be had at the office of the Dean of the Graduate College or the office of the Supervisor of Testing Service. While it is not required, except as indicated above, applicants for admission may submit their scores on the Graduate Record Examination as valuable evidence of the fitness for admission. Examinations will be given in January, April, July, and November. Further information about the Graduate Record Examination may be obtained by writing to the Educational Testing Service, Princeton, New Jersey. Applicants in the West Coast region should write to Educational Testing Service, P. O. Box 27896, Los Angeles 27, California.

All correspondence pertaining to the admission of a student to the Graduate College should be addressed to the Dean of the Graduate College, Ohio University, Athens, Ohio.

Application for admission consists of the presentation of an application blank filled in by the applicant, an official transcript from each school attended, a vaccination blank certified by a physician, and a medical history blank filled in by the applicant and completed by a physician. The vaccination and medical history blanks are not required if a student plans to attend the summer session *only* as a special student.

*Applications for admission together with the \$5 application fee and supporting credentials, including official transcripts for all academic work, should be received at least three weeks in advance of registration for the semester or the summer term in which the student wishes to begin graduate study.**

TRANSIENT STUDENTS. A graduate student who is attending another university may be admitted as a transient student by submitting an application and presenting an official statement of good standing from the university in which he is enrolled.

Admission for a summer workshop only as a special student does not constitute regular admission to the Graduate College, and admission to the Graduate College does not imply admission to candidacy for a degree. The student is referred to subsequent paragraphs on the requirements for admission to candidacy on pages 27 and 29.

CLASSIFICATION OF STUDENTS ADMITTED TO GRADUATE STUDY

1. Those students approved by the major department and the Dean of the Graduate College for unqualified admission to graduate study are granted *regular status*.
2. Students admitted under the provisions of *special status* may include those who wish to pursue course work with no intention of qualifying for a degree, those students who are transient registrants, and those with some deficiency in entrance requirements. Students in this last category may achieve regular status after the satisfactory completion of a prescribed program of study to remove deficiencies.

SENIORS AND GRADUATE STUDY. A student who is within 9 hours of completing all requirements for the bachelor's degree at Ohio University may take courses applying toward the master's degree, provided he otherwise meets the requirements of admission and secures the written recommendation of the dean of his college, the chairman of his major department, and the approval of the Dean of the Graduate College. Request for the above privilege must be made *in advance of registration* through the Graduate College office.

*This fee becomes effective for all applicants beginning study in September, 1964. Checks or money orders should be made out to Ohio University.

ASSIGNMENT TO ADVISERS. A student who qualifies for admission to the Graduate College confers with the departmental chairman or the chairman of the graduate committee who has supervision over the subject matter in the area of his major interest. The chairman will assign a faculty adviser in the major and minor fields to counsel with the graduate student and prepare the outline of graduate study. The outline is returned early in the initial term of study to the Graduate College office where it is filed and becomes a part of the record of the graduate student.

STANDARDS OF WORK. All work submitted for graduate credit shall be of high quality. *The minimum standard acceptable is a point-hour ratio of 3.0 (B) in all courses attempted in fields chosen to meet degree requirements, and not more than 20 per cent of the hours accepted with a grade of C, with no points or hours accepted below C grade.* Grades of *S* (satisfactory) or *U* (unsatisfactory) will be recorded for thesis, dissertation, and seminar. The designation of "pending" on a problem, thesis, research, or seminar course must, by arrangement with the instructor, be removed within one year after the official closing of the session in which the course was taken. An incomplete in all other courses must be removed within six weeks after the opening of the next session in which the student is in residence. *S* or *U* for thesis or dissertation is not indicated until the completion of the thesis or dissertation oral examination.

COURSES FOR GRADUATE STUDY. Credit toward a graduate degree is given for the completion of courses designed for graduate students (numbered 400-499) and courses designed for advanced undergraduates and graduates (numbered 300-399), provided the courses are included in the student's approved program of study.

APPLICATION FOR GRADUATION; COMMENCEMENT EXERCISES. The student must apply for graduation through the office of the Registrar at the time indicated in the University Calendar. If the requirements for the degree are not fulfilled within the designated semester the student must reapply for graduation.

The university graduation exercises are conducted to honor those who have achieved their degrees. The graduate student is expected to attend the commencement exercises. Academic costumes with the appropriate hoods are worn by the candidates as a part of the ceremony. The candidate will make his own arrangements for rental of the appropriate academic costume through the campus agency provided for this service. The doctoral hood is bestowed by the University and need not be rented.

THE MASTER'S DEGREE

RESIDENCE AND CREDIT. At least 27 semester hours of credit (plus thesis and/or research) are required for the master's degree. A maximum of 8 semester hours of graduate credit with *A* or *B* grades may be accepted by transfer from approved institutions which offer the

master's degree, provided the transferred course work is acceptable to the student's adviser and is *not more than five years old*. Credit for courses taken by correspondence is not accepted toward the degree. *A maximum of 12 semester hours taken in the Ohio University Branches or 6 hours by extension is accepted toward the master's degree.* A graduate student who is employed full time may, with the approval of his major adviser and the Dean of the Graduate College, carry a maximum of 6 hours of credit in a semester or a summer session of ten weeks.

After securing a bachelor's degree, an adequately prepared student engaged in full-time study may be able to complete the work for the master's degree in one year of two semesters, in three ten-week summer sessions, or six five-week summer terms. Many students find it necessary to take two semesters and a summer session for the course work and the thesis. The normal residence requirement is 30 weeks. A transfer student is required to have a minimum residence at Ohio University of one semester and one ten-week summer session, or two summer sessions of ten weeks and one five-week term, or the equivalent of at least 25 weeks. A student who takes courses for graduate credit in off-campus classes is required to have minimum residence at Ohio University of one semester and a ten-week summer session, or two ten-week summer sessions and one five-week term or at least 25 weeks.

REQUIREMENTS FOR THE MASTER'S DEGREE. For the Master of Arts, Master of Education, Master of Science, Master of Fine Arts, or Master of Business Administration degree the student may write a thesis under the direction of his adviser on a subject approved by the graduate committee of the department and the Graduate Council or the student may follow one of the programs listed below:

For the Master of Arts degree in English an optional program is provided in which the proseminar is taken in lieu of thesis.

For the Master of Business Administration degree and the Master of Science degree with a major in Accounting nonthesis options are provided.

For the Master of Fine Arts degree with a major in applied music a public recital and a recording may be offered in lieu of thesis.

For the Master of Fine Arts degree in Painting, Sculpture, or Photography, involving completion of a minimum of 48 semester hours, a show may be given in partial fulfillment of the thesis requirement.

For the Master of Education degree optional programs are available. One involves the writing of a thesis in which the student completes the usual 27 semester-hour program as described below. The other is a 32 semester-hour program in which the thesis requirement is excluded. This program of study is also available to students of Physical Education, Industrial Arts, and Home Economics, as well as Education. Other areas of study may be included. These programs are designed especially for teachers, administrators,

and others engaged in and preparing for educational work in the public schools.

All programs for majors in Education leading to the Master of Education degree will include Education 488, Introduction to Graduate Study, which provides training in research methods and writing appropriate to the work of teachers and administrators. The nonthesis program includes a seminar course of two semester hours which makes provision for the appropriate experience in writing.

Students in other areas which make provision for the Master of Education degree with the nonthesis option are referred to the specific requirements in their field of study.

PROGRAMS OF STUDY AND STUDENT LOAD. A student's program of study is made up of two parts, a major and a minor, unless a program otherwise arranged is approved by the adviser and the graduate committee of the department. Since graduate work implies advanced study and some degree of specialization, a certain amount of undergraduate preparation in a subject or field of study is presupposed before graduate study may be undertaken in that subject or field. In most departments a minimum of 18 semester hours of undergraduate work is required for the minor. The student is referred to the requirements listed by departments. The program in the major field varies from 12 to 20 semester hours exclusive of research and thesis (under the thesis plan), with a total of four to six semester hours allowed for research and the thesis. The minor field in such cases makes up the remainder of the program required for the degree and is selected from one or two fields of instruction closely related to the major field. A minimum of eight or nine semester hours constitutes the requirement for a single minor and a minimum of six semester hours in each of two areas of study the requirement for a joint minor. All of the work for the master's degree may be done in one department, school, or field on recommendation of the adviser and with the approval of the graduate committee of the department.

The maximum full-time load for a graduate student is considered to be 16 credit hours per semester (12 hours in the summer session of ten weeks or 6 hours in a single term).

Graduate assistants or research fellows normally carry a load of nine hours, though, with the approval of the chairman of the graduate committee and the Dean of the Graduate College, additional work not exceeding a total of 12 hours a semester may be carried.

EXAMINATIONS The *major course examinations* must be taken approximately one month before the oral examination on the thesis, *after* admission to candidacy has been granted and the major portion of the course work has been completed. The examination may be a written or a combination written and oral examination as determined by the committee on graduate study in the department concerned. The student makes application for the examination through his major adviser and the *Graduate College office at least a week before the examination*. The chairman of the committee on graduate study or the major adviser shall arrange for and supervise this examination. Within one week

after the examination, the instructor in charge shall file a copy of the written examination questions and the student's examination papers in the office of the Graduate College, together with the report on the student's examination. A candidate who fails the major course examination may retake the examination at the discretion of the committee on graduate study in the department concerned.

An *oral thesis examination* shall be given not later than one week before the degree is to be conferred. The examining committee shall be composed of the director of the thesis as chairman, two or more additional members from the major department, and a representative of the Graduate Council as appointed by the Dean of the Graduate College. The final arrangements for the examination shall be completed through the Graduate College office. Details of the examination, including time and place, will be sent to the examiners and the student from the Graduate College office.

THESIS. The candidate prepares his thesis under the direction of his thesis director on a subject in the field of his major work. The thesis provides an opportunity for the student to formulate and express the results of his research and study. The thesis requirement may be met by the presentation of the results of a creative activity in literature, music, fine arts, or industrial arts, together with a written essay indicating the purpose, procedure, bibliography, and problems involved in the work. The format which gives directions and style for writing the thesis and the abstract is obtained in the office of the Graduate College.

A list of competent thesis typists is available in the Graduate College office. It is recommended that the manuscript be put in final typed form by one who has had experience in thesis typing.

The thesis shall be presented to the thesis director in form for final editing at least five weeks in advance of the date of the commencement at which the candidate expects to receive his degree. At this time the thesis director will certify approval of the thesis in this form and will constitute the committee and arrange a date for the oral thesis examination through the Graduate College office. The Graduate College provides for editing of the manuscript before it is put into final typed form.

The finished typed copies of the thesis must be available one week prior to the date of the oral examination in order that adequate review of the manuscript may be made by the examining committee prior to the final oral examination.

After the thesis and abstract are approved by the Graduate College and not later than five days before the degree is conferred, the candidate files two unbound copies of the thesis with the university librarian and one bound copy of the thesis with the office of the Graduate College. The two copies filed with the university librarian are bound and retained in the university library, and the copy filed with the Graduate College is presented to the school or department in which the work has been done.

If the student desires a bound copy of his thesis, arrangements for this service can be secured through the library.

ADMISSION TO CANDIDACY. Admission to the Graduate College does not constitute admission to candidacy for a degree. In order to be admitted to candidacy for the master's degree, a student must have demonstrated ability and fitness to pursue graduate work in his chosen field by completing a minimum of 12 semester hours of graduate work with a scholastic average of 3.0 or above within his program of graduate study. A further condition of admission to candidacy is the selection of a thesis subject acceptable to the thesis director and approved by the Graduate Council, or, under the nonthesis program, the selection of a problem for investigation to be presented in the seminar.

The student must apply for admission to candidacy as soon as he has met these preliminary requirements, not later than two weeks (one week in the summer session) following the opening of his next session of residence. A student not eligible for candidacy, on completion of 12 semester hours, by reason of a scholastic average below 3.0 in all graduate work completed prior to application for candidacy, or because of failure to select an approved thesis topic, will have his qualifications reviewed and may be denied the opportunity to pursue further work, or may be classified as a special student. Application forms for admission to candidacy are obtained at the Graduate College office.

TIME LIMIT FOR THE MASTER'S PROGRAM. The maximum time allowed between the date when a student first registers for graduate study and the date when the requirements for the master's degree are completed is six calendar years. Students who do not complete their requirements for the degree within the six-year period may be permitted to continue in graduate study only if exceptional circumstances are associated with the delay in progress. An extension of time is automatically granted to those students whose programs have been interrupted by military service.

THE DOCTOR OF PHILOSOPHY DEGREE

The doctor's degree is granted on the basis of evidence that the candidate has achieved a high level of scholarship and proficiency in research rather than solely on the basis of successful completion of a prescribed amount of course work. The proficiency of the student and his ability to work independently and write creatively are established by a series of qualifying and comprehensive examinations and the quality of a dissertation submitted as an account of the student's original research.

RESIDENCE AND CREDIT. A minimum of six semesters of study and research beyond the bachelor's degree is needed to meet the requirements of the doctor's degree. At least two semesters of the doctoral program of study shall be in continuous residence at Ohio University, preferably the last semesters of study for the degree. The continuous residence requirement applies to the period of graduate study following the completion of the master's degree or the equivalent of approximately 32 semester hours of graduate study.

TRANSFER OF CREDIT. The amount of credit accepted by transfer from another university will be determined by the graduate committee of the department concerned and the Dean of the Graduate College.

PROGRAM OF STUDY. The graduate program for the doctor's degree will usually include, in addition to the major subject, at least two minor subjects of study, one of which may be in the field of the major with the other in a field distinct from but related to the major. The student will be assigned an adviser by the chairman of the major department who will outline the proposed program of study for the degree. The courses will be indicated on a special form supplied for this purpose and must be filed in the Graduate College office. A minor will normally involve a minimum of 12 semester hours of study.

TIME LIMIT FOR THE DOCTOR'S PROGRAM. The maximum time allowed between the date when a student holding a bachelor's degree initiates graduate study and the date when the requirements for the doctor's degree are completed is seven calendar years. For a person holding a master's degree the maximum time allowed from the date of initiating work toward a doctorate and the date when the requirements are completed is six calendar years.

Students who do not complete their requirements for the degree within the given period may be permitted to continue in graduate study only if exceptional circumstances are associated with the delay in progress. An extension of time is automatically granted to those students whose programs have been interrupted by military service.

ADVISORY COMMITTEE. During the first semester of the student's study the Dean of the Graduate College will select a staff member from each area of minor study to serve with the adviser in the major field as the student's graduate advisory committee. The duties of this committee are defined in terms of the subsequent requirements for the degree.

COMPREHENSIVE EXAMINATIONS. Toward the end of the student's fourth full semester of graduate study, or when course work is virtually completed, and upon the recommendation of the student's advisory committee, arrangements are made through the Graduate College office for the comprehensive examination. This examination consists of both oral and written coverage of the areas of study pursued by the student in his graduate program and is given for the purpose of establishing the student's mastery of the fields of specialization.

The committee for these examinations consists of the student's advisory committee and two members of the major department appointed by the chairman of the major department. Other members of the faculty are free to participate in the oral phase of this examination. Members of the committee will be notified of their responsibility from the Graduate College office.

LANGUAGE REQUIREMENT. Prior to admission to candidacy the student must give evidence of a reading knowledge of two foreign

languages, usually French, German, or Russian. However, the languages required should be established in terms of the student's interests and objectives. A request to qualify in a different language, supported by the recommendation of the student's major adviser, should be submitted to the Dean of the Graduate College. In certain areas of study a department may substitute another research tool for one language, such as demonstrated proficiency in statistics. Approval of such substitutions will require Graduate Council action.

The language and statistics proficiency examinations are given at stated intervals under the supervision of the respective departments. Copies of the regulations for these examinations are on file in the office of the Graduate College. Dates for the examinations are established for each semester and the summer session.

ADMISSION TO CANDIDACY. Upon successful completion of the comprehensive examinations, fulfillment of the language requirement, and approval of a research proposal by the Graduate Council, a student may, by recommendation of the advisory committee, be admitted to candidacy. Candidacy must be obtained prior to the beginning of the last two semesters of residency for the degree.

DISSERTATION. A dissertation which is the scholarly account of an investigation or research in a new area of knowledge is submitted by each candidate. The dissertation in form for final typing shall be presented to the director and major adviser at least six weeks in advance of the commencement date on which the candidate expects to receive the degree. At this time the examining committee and the date of the oral dissertation examination will be established.

No later than one week prior to the date of the oral examination at least three typed copies of the finished manuscript must be available for review by members of the examining committee. The original copy is brought to the Graduate College office for the member of the Graduate Council who will serve on the examining committee.

At least one week before the close of the semester in which the candidate receives his degree all approved copies of the dissertation, together with three copies of an abstract of not more than 600 words, are submitted to the Dean of the Graduate College for final approval.

At this time the original and first carbon copies of the dissertation and a copy of the abstract are filed with the university library. A binding fee of \$3.75 per copy and a microfilming fee of \$25 are paid to the treasurer of the University.

The original copy of the dissertation will be given to the University Microfilms for purposes of editing and microfilming and will be made available for use by inter-library exchange. It is then returned to the Edwin Watts Chubb Library at Ohio University. The abstract will be submitted to University Microfilms, Ann Arbor, Michigan, for publication in *Dissertation Abstracts*. The second carbon of the dissertation will be bound and submitted to the student's major department.

COURSES OF INSTRUCTION

EXPLANATION

CATALOG NUMBER. Courses numbered 300-399 are for advanced undergraduate and graduate students; those numbered 400-499 are exclusively for graduate students.

In general, an odd number indicates the first semester of a two-semester course; an even number, the second semester.

Two numbers at the beginning of a course indicate a two-semester or year course. A *hyphen* between the numbers indicates that the course is a continuous course; that is, the first semester course is a prerequisite for the second semester. A *comma* between the numbers indicates that although the course is a two-semester course, the first semester course is not a prerequisite for the second semester.

CREDIT. All credit is designated in semester hours. Credit for a course is indicated by the number or numbers in parentheses following the course title, and in case of a year course, is shown for each semester. In a semester course it may be expressed thus: (3), (1 to 3), or (2 or 3); in a year course, (3-3), (3, 3), (1 to 3 — 1 to 3), or (2 or 3 — 2 or 3).

In a course carrying variable credit the credit may be expressed thus, (1 to 4), usually indicating that one hour is the minimum and four hours the maximum amount of credit allowed for the course. In those instances where a student may enroll for a course with variable credit a number of times, the maximum credit available is indicated in the course description.

COURSE PREREQUISITES. Basic preparation for graduate study is described under the department heading. In some instances more specific graduate prerequisites are indicated with the course descriptions.

CLASS SCHEDULE. A Schedule of Classes is available from the Registrar for each session.

FACULTY. Listing is as of September, 1963. Included are the members of the University faculty with the rank of professor, associate professor, or lecturer. Also included are those with the rank of assistant professor or instructor who teach graduate level courses.

ACCOUNTING

Professors Beckert, Fenzel
Associate Professors Neubig, Raby, Reininga (chairman)
Assistant Professor Sheppard

A student seeking the Master of Science degree with a major in accounting should either take, or have completed, 12 semester hours of advanced undergraduate courses in accounting including cost accounting and taxes. In addition, the following business core curriculum courses should be completed: elementary accounting (6 semester hours), business law (6 semester hours), economics (6 semester hours), finance (3 semester hours), management (3 semester hours), marketing (3 semester hours), and statistics (3 semester hours).

The requirements for the M.S. degree with a major in accounting are:

| | |
|----------------|----------------|
| Accounting 401 | Economics 451 |
| Accounting 402 | Finance 401 |
| Accounting 403 | Management 410 |
| Accounting 405 | |

One course to be selected from Accounting 481, Economics 450, or Finance 402.

One course to be selected from Accounting 495, Accounting 499, or Management 481.

A student may pursue the Master of Business Administration degree with his elective work in accounting. See page 37 for the M.B.A. degree requirements. On this program, the student may substitute other 400 level courses in accounting for the requirement of Accounting 425.

To begin a minor in accounting for degrees other than the Master of Science with a major in accounting and the Master of Business Administration, only the completion of basic courses satisfactory to the department is necessary.

305-306. ADVANCED ACCOUNTING

(3-3) Neubig

Problems peculiar to partnerships, receiverships, fiduciaries, installment sales, consignments, insurance, estates and trusts; compound interest applications; governmental accounting; branches, consolidations, and mergers; and foreign exchange.

324. STANDARD COSTS AND BUDGETS

(3) Reininga

The establishment of standard costs, preparation of budgets, and analysis of cost variances.

343. FEDERAL INCOME TAX ACCOUNTING

(3) Raby

Study of advanced tax problems of individuals, partnerships, and corporations including tax planning and administration.

355. INDUSTRIAL AUDITING AND INTERNAL CONTROL

(3) Beckert

Study of types of internal audits, audit reports, fraud, and an appraisal of the standards of internal auditing as a profession. Basic and internal controls are studied in their relation to the auditor's program.

356. AUDITING PRINCIPLES AND PRACTICE

(3) Beckert

Purposes and scope of audits and examinations; audit principles and procedures; application of audit principles to practice material based on actual audit; and audit reports and certificates.

378. C.P.A. PROBLEMS

(3) Neubig

The accounting profession; C.P.A. coaching; analysis, interpretation, and solution of state board problems. Prereq., 305 or permission.

381. RESEARCH IN ACCOUNTING

(1 to 8) Staff

Prereq., 305, 324, permission.

391. SEMINAR IN ACCOUNTING

(2 to 4) Staff

Maximum credit in course, 10 hrs. Prereq., permission.

401. ACCOUNTING THEORY

(3) Reininga

The development of accounting theory historically and current developments and literature in the theory area. Prereq., permission.

402. ACCOUNTING DATA ACCUMULATION AND ANALYSIS

(3) Neubig

Accounting systems with particular relations to punched card and computerized data processing. Techniques in the quantitative analysis of accounting data. Prereq., permission.

403. HISTORY, ETHICS, AND PHILOSOPHY OF THE ACCOUNTING**PROFESSION** (3) Neubig

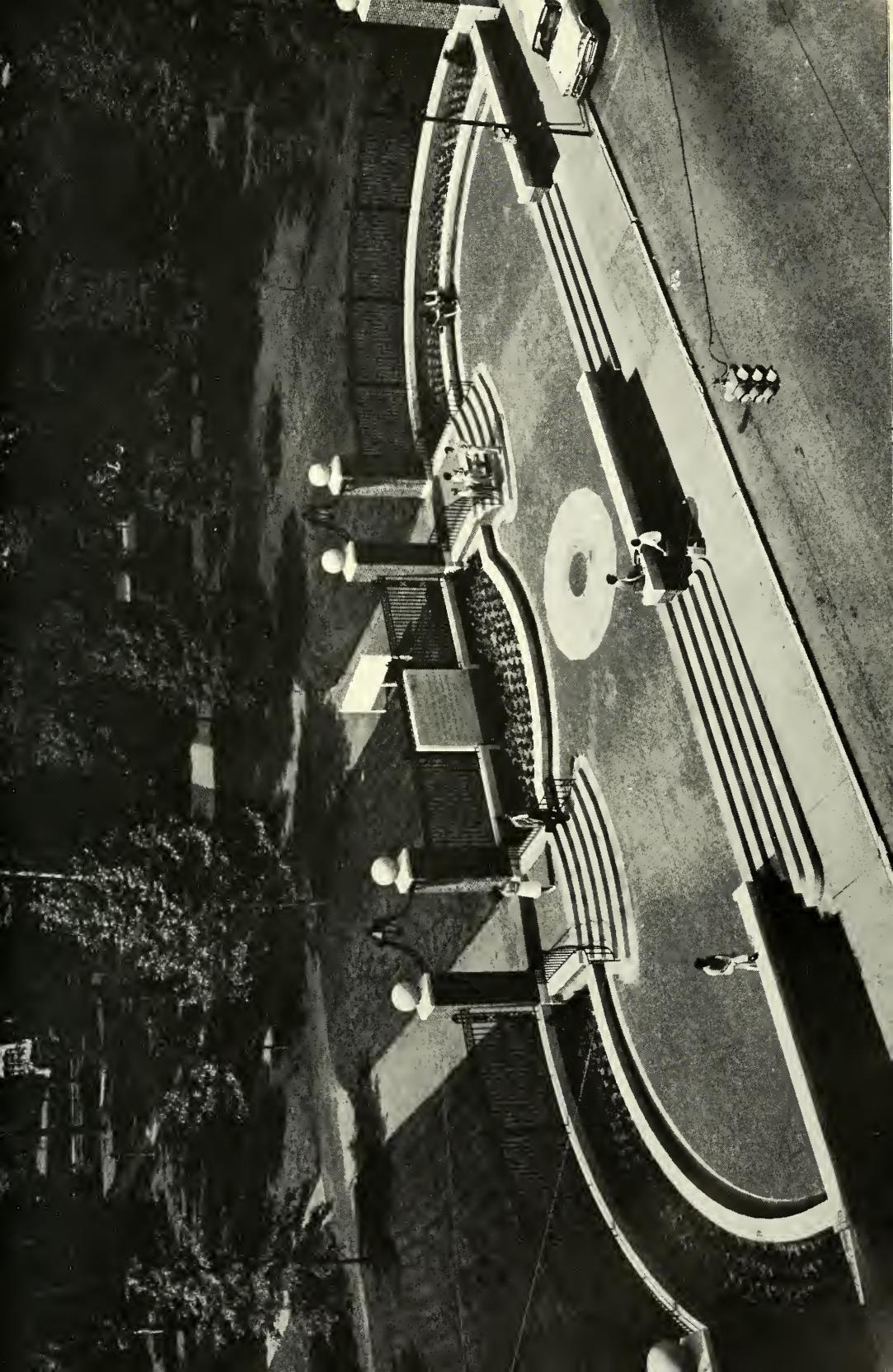
Court cases involving the profession, Securities and Exchange Commission, regulation of practice, evolution and ethics of the profession, and the philosophy of auditing. Prereq., permission.

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| 405. CONTROLLERSHIP | (3) Raby |
| Case method study of problems and policy-forming decisions of the controllership function which comprises the fields of general accounting, internal control, budgeting, taxes, cost control, and financial reporting. Prereq., permission. | |
| 425. MANAGERIAL ACCOUNTING | (3) Raby |
| A survey course designed for the Master of Business Administration degree student with particular emphasis on the uses of accounting data in making business decisions. | |
| 481. RESEARCH IN ACCOUNTING | (1 to 3) Staff |
| Independent study in either the area of accounting theory, public accounting, controllership, governmental accounting, or Federal taxes. Prereq., permission. | |
| 491. SEMINAR IN ACCOUNTING | (2 to 4) Staff |
| Maximum credit in course, 8 hrs. Prereq., permission. | |
| 495. THESIS | (1 to 6) Staff |
| Prereq., permission. | |
| 499. INTERNSHIP | (2 to 4) Staff |
| Six months of acceptable accounting work experience including periodic written reports, a final report, and an oral examination—all analyzing the work experience and integrating it with the academic program pursued. Prereq., permission. | |

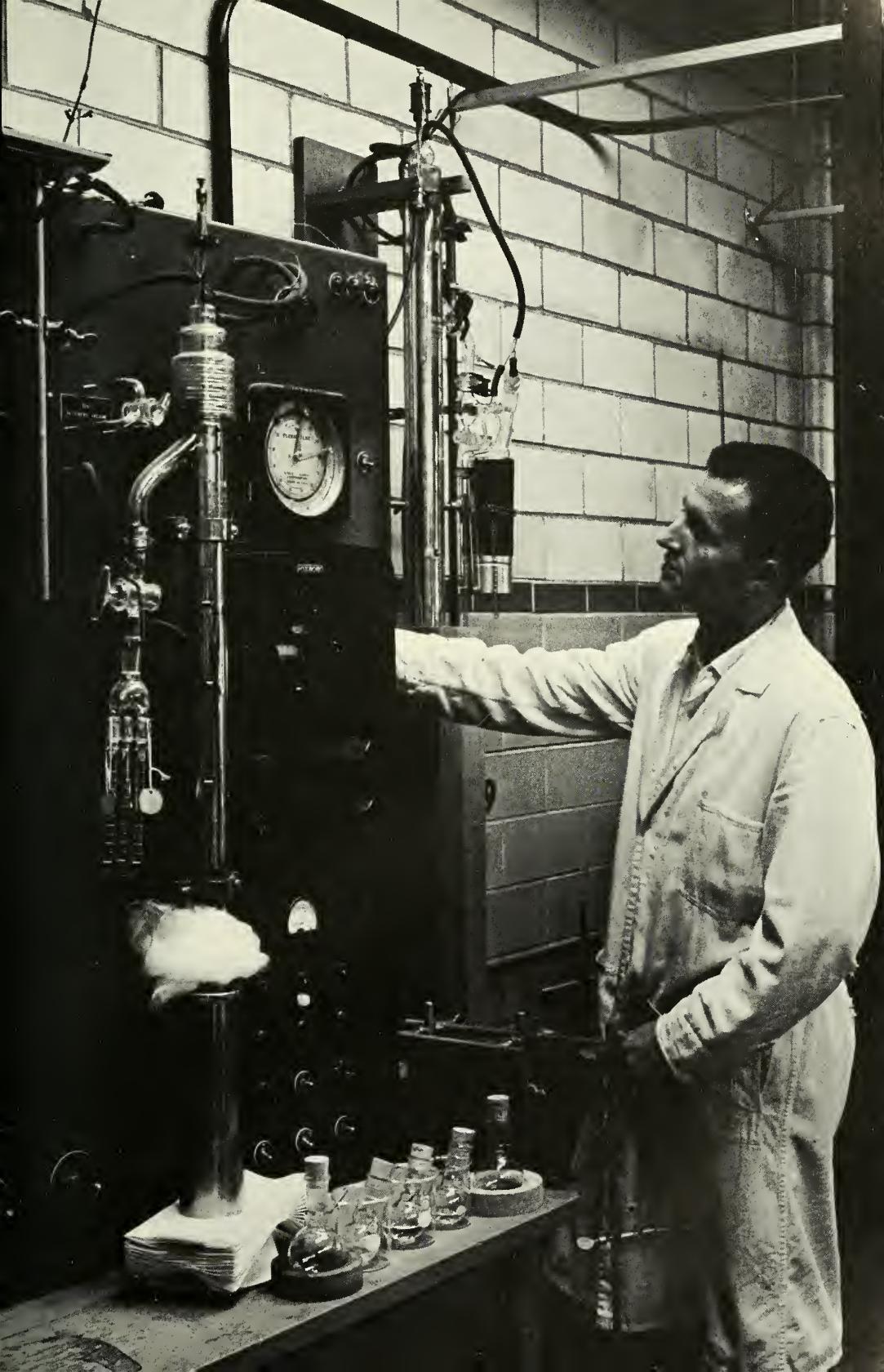
ADVERTISING—See Marketing-Advertising

ANTHROPOLOGY—See Sociology and Anthropology

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|--|---|
| ARCHITECTURE (Minor only) | Professor W. Taylor (director) Assistant Professor Millman Instructor Everett |
| 311-312. CITY PLANNING | (2-2) Millman |
| Lectures, seminar, special lecturers on geography, sociology, economics, and political science related to city planning, contemporary examples and practice, the architect's role in planning. 2 lec. Prereq., 375. | |
| 370. CIVIC DEVELOPMENT | (3) Everett |
| Investigation of the components of civic design with emphasis on historical and present examples as aids to determining the principles underlying civic design. Scale models and readings from contemporary theorists. | |
| 375. ARCHITECTURE IN THE UNITED STATES | (3) Everett |
| Development of architecture from colonial times. 2 lec. | |







A black and white photograph of a classical-style memorial chapel. The building features a prominent pedimented portico supported by four columns. Above the portico, a plaque reads "HELEN MAUCK GALBREATH MEMORIAL CHAPEL". A tall, fluted spire rises from the roofline behind the pediment. The architecture is neoclassical, with decorative moldings and a circular window on the upper level.

HELEN MAUCK
GALBREATH
MEMORIAL CHAPEL

JOHN CALLOWAN BAKER
Bakeries & Confectioners







- 377. NINETEENTH AND TWENTIETH CENTURY ARCHITECTURE** (2) Taylor
An intensive study of the rise of contemporary architecture, the education, practice, theories, and works of prominent architects. Lectures, assigned presentations, and seminar discussions. Prereq., 375 or equivalent.

378. PHILOSOPHY OF ARCHITECTURE (2) Taylor
Theories of architecture advanced or exemplified by philosophers, aestheticians, and architects. Lectures, assigned presentations, and seminar discussions. Prereq., 377.

ART

Professors Leach (director), Smith
Associate Professors Driesbach, Hostetler, Leonard,
Lin, D. Roberts, Work
Assistant Professors Baldwin, Eldridge,
Kortlander, Loomis, McCarthy, Moran, Olpp
Instructors Kearney, Stryker, Pettigrew, Ramsay
Lecturer Mutchler

**MASTER OF FINE ARTS DEGREE
(Major in Painting and Allied Arts)**

The graduate program leading to a Master of Fine Arts degree with a major in painting and allied arts involves the completion of at least 48 semester hours, including credit for research and thesis.

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| 301. INDIVIDUAL PROBLEMS | (1 to 3) | Staff |
| Registration for individual instruction. Maximum credit in course, 12 hrs. Prereq., permission. | | |
| 305. ADVANCED PAINTING | (2 or 3) | Staff |
| Maximum credit in course, 6 hrs. | | |
| 309. PRINTS | | |
| a. Lithography and Relief prints | (3) | Roberts |
| b. Intaglio prints | (3) | Driesbach |
| Maximum credit in course, 6 hrs. | | |
| 313. ADVANCED INTERIOR DESIGN | (3) | Moran |
| Research is stressed and original adaptations are made from styles of important periods. Maximum credit in course, 12 hrs. 2 lec., 4 lab. Prereq., permission. | | |
| 315. ADVANCED CERAMICS | (3) | Lin |
| Advanced production methods. Construction of potter's wheel, ball mill, and electric kilns. Advanced glaze and clay testing techniques. Maximum credit in course, 6 hrs. Prereq., permission. | | |
| 317-318. ADVANCED ADVERTISING DESIGN | (3-3) | Smith |
| Magazine, newspaper, direct mail, and display layout. | | |
| 321. ADVANCED FASHION DESIGN | (2) | Stryker |
| Maximum credit in course, 10 hrs. 1 lec., 3 lab. | | |
| 325. ADVANCED JEWELRY | (2) | Ramsay |
| Maximum credit in course, 6 hrs. 1 lec., 3 lab. | | |

328. FIGURE PAINTING (3) Mutchler
Painting from the nude or costumed figure. A study of the plastic qualities in oil painting in relation to the personal objectives of the individual student. Maximum credit in course, 12 hrs. Prereq., permission.
331. SCULPTURE (3) Hostetler
Advanced work in modeling, carving and direct metal. Theory and practice of casting processes. Maximum credit in course, 6 hrs.
- 351-352. INDUSTRIAL DESIGN (2 or 3 — 2 or 3) Ramsay
Design and presentation of industrial products with emphasis on function, appearance, and material. 4 lab. maximum credit in course, 12 hrs.
- 365-366. ILLUSTRATION (3-3) Mutchler
Emphasis on student practice. Story and commercial illustration using present-day techniques. Maximum credit in course, 9 hrs. Prereq., permission.
381. RESEARCH (1 to 5) Staff
Individual problems of theory and practice involving research techniques. Maximum credit in course, 5 hrs. Prereq., permission.
405. ADVANCED PAINTING (1 to 5) Staff
Work in traditional and contemporary media; solutions to students' problems are sought in relation to their personal objectives. Maximum credit in course, 12 hrs. Prereq., 305, permission.
409. PRINTS
a. Lithography and Relief Prints (1 to 5) Roberts
b. Intaglio Prints (1 to 5) Driesbach
Experimental work in various print media and combinations thereof. Maximum credit in course, 12 hrs. Prereq., 309.
415. CERAMICS (1 to 5) Lin
Advanced and experimental work in bodies, glazes, and kiln construction for all temperature ranges. Maximum credit in course, 12 hrs. Prereq., 315.
428. FIGURE PAINTING (1 to 3) Mutchler
Advanced work from the nude or costumed figure. Maximum credit in course, 12 hrs. Prereq., 328 or equivalent.
431. SCULPTURE (1 to 5) Hostetler
Advanced work in plaster, wood, stone, direct steel, and ceramic media. Maximum credit in course, 12 hrs. Prereq., 331, permission.
451. INDUSTRIAL DESIGN (1 to 5) Ramsay
Advanced problems in the design and presentation of industrial products. Maximum credit in course, 12 hrs. Prereq., 351 or equivalent.
495. THESIS (1 to 6) Staff
Prereq., permission.
496. STUDIO THESIS (2 to 4) Staff
Prereq., permission.

ART HISTORY—See Fine Arts**BOTANY**

Associate Professors Blickle, Gambill (chairman),
Vermillion, Wallace, Wistendahl
Assistant Professors Cohn, Graffius, Larson

To begin a graduate major in botany, the student must have completed a minimum of 24 hours in courses in botany, or in closely related fields, subject to approval by the department chairman. At least 18 of these hours must be in botany courses, including the following botanical disciplines: physiology, morphology, and taxonomy. At least a year of general chemistry at the college level is required for the completion of the master's degree.

To begin a graduate minor in botany the student should have completed a minimum of 12 hours credit in approved course work in botany or closely related fields.

304. FOREST ECOLOGY

(4) Wistendahl

The forest environment, and methods of studying the growth and development of trees and forest stands. 2 lec. and 4 lab. (2nd sem., 1965-66.)

307. ADVANCED PLANT PHYSIOLOGY

(4) Wallace

Advanced study of plant processes with special emphasis on techniques employed in research. 2 lec. and 4 lab. Prereq., organic chemistry. (2nd sem., 1964-65.)

308. ADVANCED GENETICS (Botany and Zoology)

(3) Cohn, McQuate (Zoology Dept.)

Gene action and fine structure; biochemical genetics; microbial and radiation genetics; and cytoplasmic inheritance. (2nd sem., 1964-65.)

310. RADIATION BIOLOGY (same as Zoology 310) (4) Larson, Harclerode

A study of the techniques of the use, detection and interpretation of radioactive tracers in biological problems and the effects of some radiations on living tissue. 2 lec., 4 lab. Prereq., in Botany: Courses through Plant Physiology; in Zoology: 305. (2nd Sem., 1965-66.)

311. PALEOBOTANY

(4) Blickle

Plant fossils throughout geological time. 2 lec., 4 lab. 2 Sat. field trips. (1st sem., 1964-65.)

314. DEVELOPMENTAL PLANT MORPHOLOGY

(3) Blickle

Development of ferns and seed plants with emphasis on embryology and organogenesis. 2 lec., 2 lab. (2nd sem., 1964-65.)

315. SYSTEMATIC BOTANY

(4) Gambill

Systematics, nomenclature, and phylogeny of angiosperms through laboratory, field, and herbarium studies, with emphasis on the fall flora. 2 lec., 4 lab. 2 Sat. field trips. (1st sem., 1964-65.)

316. TAXONOMY OF THE BRYOPHYTES

(4) Gambill

Identification, nomenclature, and classification of the bryophytes through laboratory and field studies. 2 lec., 4 lab. 2 Sat. field trips. (2nd sem., 1965-66.)

318. WOOD TECHNOLOGY

(3) Bickle

The methods of identification of woods, their uses and products with emphasis on comparative structure. 1 lec., 4 lab. 2 all-day field trips. (2nd sem., 1965-66.)

324. FOREST PATHOLOGY

(3) Vermillion

Diseases of forest and shade tree species, their economic importance, prevention, and control. 2 lec., 2 lab. (2nd sem., 1964-65.)

325. MYCOLOGY

(3) Vermillion

A study of specific groups of fungi, with emphasis upon taxonomy and physiology, including some reference to their economic importance. 2 lec., 2 lab. (2nd sem., 1965-66.)

327. CYTOGENETICS

(3) Cohn

Genetics and cytology in terms of chromosomes and their behavior; polyploidy; chromosomal aberrations; cancerogenesis; karyotype evolution; cytotaxonomy. (1st sem., 1965-66.)

330. PHYTOGEOGRAPHY

(3) Wistendahl

Theories and principles of plant distribution as related to evolution, migration, and speciation of plants. (1st sem., 1965-66.)

343. BOTANICAL STUDIES (2 to 4 a semester in any of the following)

Semi-independent studies supervised by the instructor. May include inter-departmental projects. Maximum credit in any listed area, 6 hrs.; total for all areas, 9 hrs. Prereq., permission.

- a. **Plant Morphology** — studies of the fundamental plant form, structure, life cycles, and reproduction. Bickle
- b. **Plant Anatomy** — studies in the detailed structure of cells and tissues of root, stem, leaf, flower, fruit, and seed. Bickle.
- c. **Plant Physiology** — studies in the primary functions, processes, and growth phenomena of plants. Larson, Wallace.
- d. **Plant Ecology** — studies in the interrelations of plants with one another and the environment. Wistendahl.
- e. **Plant Taxonomy** — studies in the identification, nomenclature, classification, and phylogeny of plants, based on the native flora. Gambill.
- f. **Plant Pathology** — studies in the nature, prevention, cause, and control of plant diseases. Vermillion.
- g. **Paleobotany** — studies in the organ histology, morphology, and classification of vascular plant fossils. Bickle.
- h. **Mycology** — advanced studies of nonpathogenic macrofungi and microfungi. Vermillion.
- i. **Cytology and Cytogenetics** — studies of cell structure and functions; chromosome structure, composition, and behavior. Cohn.
- j. **Phycology** — studies in the identification, classification, morphology, life cycles and ecology of algae. Graffius.

350. BOTANICAL LITERATURE

(2) Staff

Introduction to the professional journals in the various branches of plant science; to significant reference works including encyclopedic, biographical and bibliographical sources; and to special publications such as those emanating from symposia and congresses. Prereq., 20 hours. (Yearly.)

360. PHYCOLOGY

(4) Graffius

Classification, life histories, morphology, physiology and ecology of fresh-water and marine algae. 3 lec., 3 lab. (1st sem., 1965-66.)

391,392. SEMINAR IN BOTANY

(1,1) Staff

Presentation of papers based on individual research or on readings in current botanical literature. Required of all graduate students. Maximum credit in course, 2 hrs. Prereq., permission. (Each sem.)

481. RESEARCH PROBLEMS

(1 to 4) Staff

Independent research leading to the master's thesis. Maximum credit in course, 6 hrs. Prereq., permission.

495. THESIS

(1 to 6) Staff

Prereq., permission.

BUSINESS ADMINISTRATION**MASTER OF BUSINESS ADMINISTRATION**

To begin graduate work in business administration, a student seeking the Master of Business Administration degree should have at least 30 semester hours in business administration, including accounting, business law, economics, finance, management, marketing, and statistics.

The program for the M.B.A. degree is as follows: Accounting 425, Economics 450-451, Finance 401-402, Management 410, Marketing 458, and either Management 481 or a thesis course in any of the above departments. In addition, sufficient courses at the 300 level or above must be taken to total 32 semester hours. (27 hours for the thesis plan). No more than 40 per cent of the work in the M.B.A. program may be taken in a single department.

BUSINESS EDUCATION

Associate Professor Sponseller (chairman)
Assistant Professors Appel, Richards, Weaver

The student interested in a major in business education should enroll in Plan B of the program for the Master of Education degree. In addition to having met the entrance requirements for this program, the student planning to major in business education should have completed at least 28 hours or the equivalent in business administration (including economics) and secretarial subjects.

A major in business education is required to take graduate courses in business and economics. These courses are selected, with the assistance of the adviser, according to the background and interest of the student.

The student planning to minor in business education should have completed 20 hours or the equivalent in business administration (including economics) and secretarial subjects.

335. COMMERCIAL CURRICULUM CONSTRUCTION

(2) Staff

Principles and factors necessary in the construction of a curriculum of commercial courses in the high schools of varied communities.

387. RESEARCH IN BUSINESS TEACHING PROBLEMS

(1 to 8) Staff

Prereq., permission.

391. SEMINAR IN BUSINESS TEACHING PROBLEMS

(2 to 4) Staff

Maximum credit in course, 10 hrs., Prereq., permission.

437. ADMINISTRATION IN BUSINESS EDUCATION

(3 to 6) Staff

Problems involved in planning, administering, and supervising a business education program in the high school. Prereq., permission.

BUSINESS LAW (Minor only)

Associate Professor Howard
Assistant Professor Kloss (chairman)

A graduate major in business law is not available. A minor may be developed in this area of study. To begin work in business law, the student must have completed basic courses satisfactory to the department.

342. LAW OF REAL ESTATE (2 or 3 as scheduled) Howard, Kloss

Deeds, mortgages, leases, and other interests in real property, and the relationships between landlord and tenant.

362. LAW OF ESTATES AND TRUSTS (2 or 3 as scheduled) Howard, Kloss

The nature, creation, administration, and disposition of estates and trusts along with the principles of law pertaining thereto, and a consideration of the problems involved in planning an effective and economical gift distribution of property interests.

375. GOVERNMENT AND BUSINESS (3) Howard

A study of statutes and court decisions by which government controls, regulates, and aids business under the commerce clause, the police power, and the anti-trust laws.

381. RESEARCH IN LAW (1 to 8) Staff

Prereq., permission.

CERAMICS—See Art**CHEMICAL ENGINEERING—See Engineering****CHEMISTRY**

Professors Clippinger, Day, Eblin,
Huntsman (chairman), Ingham, Kline
Associate Professors Brooks, Sympson
Assistant Professors Clearfield, McKay, Paudler,
Tong, Westenbarger, Winkler

To begin a graduate major in chemistry the student must have completed a full year's work in quantitative analysis (8 hours), organic chemistry (10 hours), and physical chemistry (6 hours). Calculus (8 hours) and physics (8 hours) are also required.

The minimum undergraduate preparation for a graduate minor in chemistry includes general chemistry and introductory courses in analytical and organic chemistry.

Students beginning graduate work in chemistry are required to take an entrance examination covering inorganic, analytical, organic, and physical chemistry. This examination is administered during registration week and the results are consulted in planning the course work of the students.

303. ADVANCED QUANTITATIVE ANALYSIS (3) McKay, Sympson

A lecture course in classical analytical chemistry for entering graduate students needing further training in analytical chemistry. (Yearly.)

305. INSTRUMENTAL ANALYSIS

(4) McKay, Sympson

Methods of instrumental analysis: potentiometry, polarography, coulometry, emission and absorption spectroscopy, X-ray spectra, X-ray diffraction, and chromatography. 2 lec., 6 lab. Prereq., 314 (Each sem.)

311. PHYSICAL CHEMISTRY

(3) Clearfield, Eblin

Recommended as a graduate minor course for fields other than chemistry. Prereq., 12 hours chemistry, 5 hrs. mathematics. (1st sem., yearly.)

313-314. PHYSICAL CHEMISTRY

(3-3) Brooks, Day, Westenbarger

No credit for graduate students in chemistry. (Yearly.)

315-316. PHYSICAL CHEMISTRY LABORATORY

(2-2) Eblin

6 lab. Prereq., 311 or 313 or with 311 or 313. (Each sem.)

317. CHEMICAL THERMODYNAMICS

(3) Day, Westenbarger

Prereq., 314. (1st sem., yearly.)

321. QUALITATIVE ORGANIC ANALYSIS

(4) Ingham, Winkler

The separation and identification of organic compounds. 2 lec., 6 lab. (2nd sem., yearly.)

323. ORGANIC CHEMISTRY SURVEY

(3) Huntsman, Paudler

Basic reactions and concepts of organic chemistry. (1st sem., yearly.)

333. INORGANIC CHEMISTRY

(3) Clearfield, Kline

Inorganic chemical reactions and structure, Prereq., 16 hrs. (1st sem., yearly.)

335. RADIOCHEMISTRY

(3) Tong

An introductory course in the application of isotopes to problems in chemistry, and the chemical effects of the radiation and mass of isotopes. Prereq., 16 hrs. (Yearly.)

336. RADIOCHEMISTRY LABORATORY

(2 or 3) Tong

A course in the techniques of handling, detection, and determination of radioactive material and the application of radioactive tracers to the solution of problems in chemistry. 3 lab. Prereq., 335. (Yearly.)

350. CHEMICAL LITERATURE

(2) Staff

Introduction to chemical literature in journals, handbooks, monographs, and patents. Particular emphasis will be given to selected problems in finding, assembling, and using chemical data. Prereq., 24 hrs.; reading knowledge of German. (Yearly.)

351. SPECIAL PROBLEMS IN CHEMISTRY

(2 or 3) Staff

Minor research with laboratory and library work. Maximum credit in course, 6 hrs. Prereq., 24 hrs. with a B average. (Each sem.)

405. ELECTROCHEMICAL METHODS OF ANALYSIS

(3) Sympson

A course dealing with the fundamentals and applications of potentiometric titrations, conductometric titrations, coulometry, voltammetry and amperometric titrations, and chronopotentiometry. Prereq., 305.

406. OPTICAL METHODS OF ANALYSIS

(3) McKay, Sympson

Application of emission spectroscopy, absorption spectroscopy, X-rays, fluorophotometry, nephelometry, and turbidimetry to chemical analysis. Prereq., 314.

408. MODERN TECHNIQUES OF CHEMICAL SEPARATIONS (3) McKay
The fundamentals and applications of ion exchange, chromatography, electrodepositions, electrophoresis, and extractions. Prereq., 303.
410. SPECIAL TOPICS IN ANALYTICAL CHEMISTRY (2 or 3) Staff
Topics of special interest in analytical chemistry. Electronics, nuclear magnetic resonance, solvents, and organic reagents. Prereq., permission.
418. CHEMICAL KINETICS (3) Day, Tong
Insight into the mechanisms by which chemical reactions occur, and the energies involved, through interpretation of data on rates of reactions. Prereq., 314. (2nd sem., yearly.)
425. QUANTUM CHEMISTRY (2 or 3) Brooks, Westenbarger
The fundamentals of quantum theory and their application to some simple systems of chemical interest. Prereq., 314.
427. MOLECULAR STRUCTURE (3) Brooks
Prereq., 317.
429. STATISTICAL THERMODYNAMICS (3) Day
Prereq., 317.
434. ADVANCED INORGANIC CHEMISTRY (3) Clearfield, Kline, Tong
Modern theoretical inorganic chemistry. Prereq., 333. (2nd sem., yearly.)
437. SOLUTIONS (3) Tong
Selected topics in solution thermodynamics and kinetics, such as stoichiometry, theories of electrolytes, electrochemistry, irreversible processes, kinetics of induced reactions, acid-base catalysis, photochemistry, and heterogeneous reactions.
439. LESS FAMILIAR ELEMENTS (3) Kline
The chemistry of lanthanide and actinide elements, other less familiar elements, and less familiar oxidation states of common elements. Prereq., 333.
441. COORDINATION COMPOUNDS (3) Kline, Tong
The classification, nomenclature, synthesis, structure, equilibrium and kinetics of substitution and isomerization reactions of coordination compounds, and the nature and energetics of the coordination bond. Prereq., 333.
- 445-446. ADVANCED ORGANIC CHEMISTRY (3-3) Huntsman, Paudler
Modern aspects of organic chemistry with emphasis on the relationships between structure and reactivity. (Yearly.)
- 451, 452. SEMINAR IN CHEMISTRY (1, 1) Staff
Required of all graduate students in chemistry each sem. in residence.
- 469, 470. STRUCTURE DETERMINATION BY SPECTROSCOPIC METHODS (2, 2) Staff
Modern methods for determining molecular structure are considered. Topics included are nuclear magnetic resonance, electron paramagnetic resonance, infrared, Raman, ultraviolet, and visible spectroscopy.

471. PHYSICAL ORGANIC CHEMISTRY

(3) Ingham, Winkler

The application of modern concepts to the mechanisms of organic reactions. Both ionic and free-radical reactions are discussed. The impact of quantum mechanics on theoretical organic chemistry is emphasized. Prereq., 446.

474. ALKALOIDS

(2) Paudler

General principles of isolation, structure determination, and biogenesis of alkaloids and related substances. Prereq., 446.

475. TERPENES

(3) Huntsman

The chemistry of terpenes and related compounds, with particular emphasis on classical and modern methods of proving structure. Prereq., 446.

477. HETEROCYCLIC COMPOUNDS

(2 or 3) Ingham

Principal heterocyclic systems, including some related natural products. Prereq., 446.

479. ADVANCED TOPICS

(2 to 6) Staff

Special topics as required for advanced students.

480. RESEARCH TECHNIQUES

(3) Staff

Lectures and laboratory practice in the skills of research, such as glass-blowing, vacuum work, crystallization, and distillation. Prereq., permission.

481. RESEARCH IN CHEMISTRY

(As recommended by dept.) Staff

Prereq., 36 hrs. (Yearly.)

495. THESIS OR DISSERTATION

(As recommended by dept.) Staff

Prereq., permission.

CIVIL ENGINEERING—See Engineering**CLASSICAL LANGUAGES (Minor only)** Professor Murphy (chairman)

Assistant Professor Urdahl

Instructor Hultgren

Major work on the graduate level in Greek and Latin is not offered.

The prerequisite for a graduate minor in Latin is 12 hours of Latin above two high school units.

The prerequisite for a graduate minor in Greek is 12 hours of Greek.

GREEK**309. ADVANCED GREEK READINGS**

(1 to 3) Hultgren, Urdahl

Selections from the poets, dramatists, orators, and philosophers to fit the interests and needs of students. Maximum credit in course, 9 hrs. (Yearly.)

LATIN**303. PLINY AND MARTIAL**

(3) Murphy

Letters and epigrams revealing the human side of Roman life and society from Nero to Trajan. (1st sem., 1965-66.)

304. LIVY AND OVID (3) Urdahl
The legendary history of early Rome and mythology in verse.
311. CICERO (LETTERS) AND CATULLUS (POEMS) (3) Hultgren
318. READINGS IN LATIN LITERATURE (1 to 4) Hultgren, Murphy
Selections from a wide range of Latin literature according to the needs and interests of students. Maximum credit in course, 10 hrs. (Both semesters, 1964-65.)
331. THE LIFE OF THE ROMANS (2) Hultgren
The social customs of the Romans: the family, the house, transportation, public amusements, and related features. Illustrations from the archaeological evidence. (Given upon sufficient demand.)
333. ADVANCED LATIN SYNTAX (2) Murphy
(Given upon sufficient demand.)
340. SPECIAL WORK IN LATIN (1 to 4) Hultgren, Murphy
Specialized work in selected phases of Classical study. Maximum credit in course, 8 hrs.

DESIGN—See Art

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|--------------------------------------|--|
| DRAMATIC ART AND SPEECH | Professors Andersch, Kantner (director), LaFollette, Staats, Walker |
| Dramatic Art | Associate Professors Ham, Jukes, |
| Radio-Television | Lane, Penson, Watkins, Wiseman |
| Public Address, Oral Interpretation, | Assistant Professors Barnett, Conover, |
| Speech Education | Cooper, Faules, Glick, Greer, Hahne, |
| Speech and Hearing Therapy | Holmes, Spalding Instructors Marshall, Nichol, Winters |

PROGRAM OF STUDY FOR THE MASTER'S DEGREE

Prospective graduate students in dramatic art and speech should present a minimum of 24 hours of undergraduate work, including basic speech courses and courses in any or all of the following: public address, speech and hearing therapy, audiology, speech science and phonetics, theatre, oral interpretation, radio-television, and speech education. Academic ability, experience records, and personal recommendations are also considered in the selection of the students to be admitted for graduate study.

Those accepted with less than the minimum course requirements will be expected to make up the deficiency through further work at the undergraduate level or additional graduate courses according to the needs of the individual student.

General requirements for the master's degree normally include Speech 401—Introduction to Graduate Work and, for graduate assistants and prospective college teachers, Speech 462—Speech and Higher Education.

After fulfilling these general requirements, the student may elect to follow a comprehensive major in the broad field of speech or to specialize within a given area. The program of study also includes a minor of from 8 to 12 hours of related course work either within the field of speech or in another discipline. Students with deficiencies in

preparation for specialization in the major or minor areas, will be expected at the discretion of the departmental Graduate Committee to take appropriate additional course work.

A student majoring in another discipline and wishing to minor in dramatic art and speech will normally be expected to complete from 8 to 12 hours of work, preferably concentrated in a given area or in closely related areas, and to meet the prerequisites for the courses chosen.

THE DOCTORAL PROGRAM

Applications for admission to graduate study at the doctoral level will be considered individually by the staff members in the major area. To be eligible for admission without conditions, an applicant must have completed the master's degree in the field of speech, or the substantial equivalent of the course requirements for this degree, and show evidences of superior scholarship, a genuine interest in research, good character, and other personal attributes appropriate to a potential member of a learned profession.

The doctoral program provides for the acquisition of a relatively broad background in the general field of speech or for concentrated study in one or more areas of special interest. Major areas of study are: (1) public address, including history of public address, rhetorical theory and criticism, discussion and debate, persuasion, psychology of speech, and communication in organizations, (2) speech pathology and correction, audiology, speech science and phonetics and (3) radio and television.

The general course requirements for the degree are (1) a total of 100 semester hours of graduate credit, (2) a major of not less than 36 hours, (3) a minor of not less than 9 hours within the field of speech, (4) an outside minor of not less than 12 hours and (5) at least 16 credit hours of dissertation research. The minor in speech may be taken in any of the major areas named above or in theatre and interpretation. The outside minor may, with the approval of the advisor and the departmental graduate committee, be in any discipline that is related to the area of specialization or serves to provide a broad scholarly background for the student.

DRAMATIC ART

304. ADVANCED ACTING

(3) Lane

Creation of roles in plays of different types, styles, and periods. Study of dialects. Laboratory experience in rehearsal and performance.

306. ADVANCED STAGECRAFT

(3) Winters

Theories and problems involved in scenic decor.

321. HISTORY OF DRAMATIC CRITICISM

(3) Conover, Walker

The principles of dramatic criticism from Aristotle to the present.

322. DRAMATIC COMPOSITION

(3) Walker

Theory of playwriting. Practical experience in the writing and rewriting of plays. Scripts of sufficient merit are produced under the writer's supervision by the University Playshop.

323. SCENE DESIGN AND PAINTING

(3) Winters

Theories of the designing and painting of stage settings; effect of stage lighting on scenery and make-up; practical experience.

324. CONTEMPORARY THEATRE

(3) Lane

Trends in twentieth century theatre; the spread of the "new stage-craft," the growth of realism, and developments in non-realistic theatre and drama.

351. ADVANCED PLAY DIRECTION

(3) Conover

353. MASTERS OF THE THEATRE

(3) Lane

Techniques for the production of historical plays. Preparation of the director's manuscript and actual supervision of production. Open only to majors in dramatic art. Prereq., 351 and permission.

359. ACTING FOR LYRIC DRAMA

(3) Conover

Advanced techniques of acting in relation to the form and content of lyric drama. Laboratory experience in the creation of roles. Special emphasis on the Elizabethan, with some attention to Greek and twentieth century authors. Prereq., 304.

377. THEATRICAL COSTUME DESIGN

(3) Nichol

Costume design for the theatre; techniques of rendering costume plates and elements of pattern drafting for period costume.

422. RENAISSANCE THEATRE

(3) Conover

The development of the theatre from the rise of humanism to the establishment of the Baroque style.

423. BAROQUE THEATRE

(3) Walker

Detailed study of the Baroque Period with special attention to the theatre arts as expressions of the aesthetic, social, and political philosophies of the times.

424. NINETEENTH CENTURY THEATRE

(3) Walker

A study of the major developments of the nineteenth century European theatre in relation to the aesthetic and social forces of the times.

435. ADVANCED LIGHTING

(3) Winters

Lighting design, history of stage lighting. Advanced technical consideration of instruments, control equipment, and color media. Production experience.

447. ADVANCED PROBLEMS IN DRAMATIC PRODUCTION

(3 to 6) Lane, Winters

Structure, management, direction, and finance of theatre programs with special reference to the summer theatre which serves as a laboratory for observation and participation. Summer sessions only. Maximum credit, 6 hrs. Prereq., permission.

480. SEMINAR IN TECHNICAL THEATRE OR COSTUMING

(3 or 4) Staff

Prereq., 323 or equivalent.

481. SEMINAR IN DIRECTING OR THEATRE MANAGEMENT

(3 or 4) Staff

Prereq., 351 or equivalent.

494. RESEARCH

(1 to 12) Staff

Individual, guided research on special problems. Projects must be approved prior to registration. Prereq., permission.

495. THESIS

(1 to 6) Staff

Prereq., permission.

RADIO-TELEVISION

301. BROADCASTING AND THE PUBLIC (3) Spalding
A study of the relationship and interaction between the broadcaster, government regulatory agencies, and the public. The development of bases for critical evaluation and judgment of the educational, cultural, and economic significance and impact of broadcasting.
302. PRINCIPLES OF TELEVISION PRODUCTION (3) Marshall
Production aspects of television and general principles of equipment operation and crew responsibilities. Laboratory experience. 2 lec., 2 lab.
303. TELEVISION NEWS PRODUCTION (2) Wagner
See Journalism.
309. RADIO-TELEVISION ADVERTISING AND MANAGEMENT (3) Turnbull
See Journalism.
316. DOCUMENTARY AND CONTINUITY WRITING (3) Staff
Writing of scripts including continuity, straight and dramatized commercials, original and short sketches, and stories. 3 lec. Prereq., 301, 302 or permission.
317. WRITING FOR RADIO AND TELEVISION (3) Staff
Writing and critique of the form, structure, and presentation of both dramatic and non-dramatic formats. 3 lec. Prereq., 300, 301 or permission.
326. ADVANCED RADIO PRODUCTION-DIRECTION (3) Greer
2 lec., 2 lab. Prereq., 301, or permission.
331. TELEVISION PRODUCTION-DIRECTION (3) Holmes, Marshall
Analysis and application of the theory and techniques of directing for television with special attention to the problems involved in the basic formats. 2 lec., 2 lab. Prereq., 302 or permission.
332. ADVANCED TELEVISION PRODUCTION-DIRECTION (3) Holmes
Rehearsal, performance and technical work connected with the production of the dramatic script. 2 lec., 4 lab. Prereq., 331.
348. TELEVISION DESIGN, LIGHTING, AND GRAPHICS (3) Jukes
Theory and practice of design, lighting, and graphics as related to television production. Individual projects involving research, design, and construction. Prereq., 302.
351. RECORDING FOR TELEVISION (3) J. Anderson, Jukes
Film and video recording in television. The development of standards and techniques for editing and make-up of film and video recordings. Critical analysis of the potential of these media in television. 2 lec., 2 lab. Prereq., 302 or permission.
360. INSTRUCTIONAL METHODS IN EDUCATIONAL
RADIO-TELEVISION (3) Spalding
Practical applications of television in the public school classroom. Utilization of television programs as an adjunct to instruction. Preparation of instructional units for telecasting. 2 lec., 2 lab. Prereq., permission.
375. RADIO-TELEVISION PROGRAMMING (3) Glick
Study of station operation with particular reference to program planning, series building, costs and staff. 3 lec., Prereq., 301.

385. RADIO AND TELEVISION IN EDUCATION (3) Holmes
 Study of the problems in broadcasting and televising high school and college courses. Practical applications in setting up programs. Prereq., 12 hrs. Radio-Television or 12 hrs. Education, permission.
483. SEMINAR — HISTORY OF BROADCASTING (3) Staff
484. SEMINAR — PROGRAMMING AND CRITICISM (3) Spalding
494. RESEARCH (1 to 12) Staff
 Individual guided research on special problems. Projects must be approved prior to registration. Prereq., 8 hrs., permission.
495. THESIS OR DISSERTATION (As recommended by dept.) Staff
 Prereq., permission.

PUBLIC ADDRESS, ORAL INTERPRETATION, AND SPEECH EDUCATION

303. ADVANCED ORAL INTERPRETATION (3) Conover
 A study of the principles of types of literature from the standpoint of the oral interpreter. Emphasis on the development of skill in the interpretation of various forms of poetry, prose, and dramatic literature.
305. PROBLEM SOLVING THROUGH GROUP DISCUSSION (3) Wiseman
 Social responsibility, ethical problems and standards; application of the principles of general semantics and group dynamics; purposes, types and methods of discussion; frequent class practice.
308. PSYCHOLOGY OF SPEECH (3) Brandes
 A study of the psychological principles most active in oral communication, including laughter, stage fright, lying, and language development, together with the results of these factors on the speaker and his audience.
309. CLASSICAL RHETORICAL THEORY (3) Staats, Watkins
 The principles of rhetoric based upon the theories of Aristotle, Cicero, Quintilian, and Adams. Speeches of eminent orators are analyzed.
325. DIRECTION OF FORENSIC PROGRAMS (3) Brandes, Faules
 Organization of forensic programs in high schools and colleges, management of inter-school contests and tournaments, coaching of debate, discussion and individual events, and principles of judging. Practical application in the university forensic program. Prereq., 305 or equivalent.
333. ORAL INTERPRETATION OF DRAMATIC LITERATURE (3) Conover
 A study of the principles of drama from the standpoint of the oral interpreter. Special emphasis on the modern period from Ibsen and Chekov to the present. Prereq., 303, or Dram. A. 359.
340. APPLICATION OF GENERAL SEMANTICS TO SPEECH (3) Wiseman
 The chief formulations from general semantics will be presented with special emphasis on the application of these principles to the field of speech.
342. PERSUASION (3) Brandes
 Survey of experimental research on the content and arrangement of speeches with emphasis on the use of evidence and of emotional and ethical proof.

344. APPROACHES TO THE STUDY OF ORAL COMMUNICATION

(3) Person, Wiseman

Comparison and integration of the various approaches to the study of communication behavior in individuals and groups.

349. RHETORICAL CRITICISM

(3) Watkins

Theories and critical methods of Plutarch, Cicero, Goodrich, Brougham, and selected modern writers. Prereq., 309 or equivalent.

366. COMMUNICATION IN ORGANIZATIONS

(3) Person

Overview of communication principles applied to organizations. Objectives and techniques of communication. Main channels of communication within organizations and models, media and message types.

385. CONTEMPORARY PUBLIC ADDRESS

(3) Brandes

395. ADVANCED ARGUMENTATION AND DEBATE

(3) Brandes

Advanced principles of argumentation and persuasion. Analysis of logical, ethical, and emotional proofs.

401. INTRODUCTION TO GRADUATE WORK

(3) Kantner

Men, movements, and professional literature in the field of speech. Conduct of research and selection of a thesis problem.

412. ADVANCED SPEECH COMPOSITION AND DELIVERY

(3) Staats

Advanced study of content, organization, composition, and delivery of lecture-length speeches. Prereq., 309 or equivalent.

462. SPEECH AND HIGHER EDUCATION

(3) Andersch

Philosophy and function of speech as an academic discipline; problems in the teaching of speech at the college level.

471. AMERICAN PUBLIC ADDRESS

(3) Staats

The history of public address in America from colonial times to the present.

472. BRITISH AND FRENCH PUBLIC ADDRESS

(3) Watkins

A study of the pulpit and political orators of the French revolutionary period and the British parliamentary orators of the eighteenth and early nineteenth centuries. Prereq., 309 or equivalent.

473. RENAISSANCE RHETORICAL THEORY

(3) Watkins

The major rhetorical theories from Cox in 1530 to Whately in 1828 are covered with the emphasis placed on the Renaissance linking of ancient to modern rhetoric.

475. GREEK, ROMAN, AND PATRISTIC PUBLIC ADDRESS

(3) Staats

Historical and cultural aspects of public address in the Greek, Roman, and Patristic periods. Outstanding speakers and speeches of each period analyzed in terms of the issues of the time. Prereq., 309.

490. SEMINAR IN PUBLIC ADDRESS

(3) Staats, Watkins

Advanced study in the history of public address, rhetorical theory, or rhetorical criticism and speech analysis. Class discussions and reports. Prereq., 309 or 471, or equivalent.

491. SEMINAR IN SPEECH EDUCATION

(2 or 3) Andersch

Problems in the teaching of basic speech courses at the college level; evolution of the speech curriculum. Assigned problems.

- 494. RESEARCH** (1 to 12) Staff
 Individual, guided research on special problems. Projects must be approved prior to registration. Prereq., permission.
- 495. THESIS OR DISSERTATION** (As recommended by dept.) Staff
 Prereq., permission.

SPEECH AND HEARING THERAPY

- 307. CLINICAL METHODS** (3) Ham
 Basic orientation to speech therapy. Observation of children with normal and defective speech. Clinical work in the school situation and in the Children's Speech Clinic.
- 310. SPEECH PATHOLOGY** (3) LaFollette
 Organic speech disorders.
- 312. PHONETICS** (3) Kantner
 The study of speech sounds from a sociological, physiological, and acoustical point of view. Mastery of the international phonetic alphabet. Training in phonetic transcription.
- 319. AUDIOMETRY AND SPEECH AND HEARING PROBLEMS** (3) LaFollette, Richards
 Techniques and audiometric testing with clinical practice; interpretation of audiograms, criteria for educational placement and referral; principles of hearing aid selection; public school hearing conservation programs.
- 320. ADVANCED CLINICAL METHODS** (3) Barnett
 Methods in speech correction for adults; survey of current literature; clinical experience with adults in such problems as articulatory disorders, stuttering, aphasia, cerebral palsy, cleft palate, and loss of hearing. Prereq., 310.
- 323. LIP READING** (3) LaFollette
 The basic principles of understanding language by observing the speaker's lips and facial expression. Emphasis on both theory and practice of speech reading. Special attention given to teaching methods.
- 329. ADVANCED CLINICAL AUDIOLOGY** (3) Richards
 Pathology of the ear and related speech disorders, emphasizing advanced techniques in the testing of hearing for analysis and for differential diagnosis. Prereq., 319.
- 335. DIAGNOSTIC PROCEDURES IN SPEECH AND HEARING** (3) Ham
 THERAPY
 The role of diagnosis in speech and hearing therapy; conducting the speech examination; the nature, purpose, administration and interpretation of the more important diagnostic tests and procedures. Prereq., 320 or with 320.
- 345. STUTTERING AND PSYCHOGENETIC DISORDERS OF SPEECH** (3) Cooper
 Nature, causes, development, and treatment of stuttering and other speech defects with psychogenic implications. Prereq., 320 or with 320.
- 347. THERAPY PRACTICE IN SPEECH AND HEARING** (1 to 12) Ham, staff
 Supervised experience in the rehabilitation of speech and hearing disorders in the University Speech and Hearing Clinic or off-campus in cooperating clinics and hospitals.

362. THE SPEECH AND HEARING MECHANISM (3) Ham

The structure and functions of the mechanisms for speech and hearing.

370. AUDITORY REHABILITATION (3) Richards

Diagnostic and rehabilitation procedures for hard of hearing cases who can benefit from the use of a hearing aid. Problems relating to the selection, fitting, use and care of the hearing aid. Practice in the Audiological Center. Prereq., 9 hours of audiology or permission.

392. SPEECH SCIENCE (3) Richards

Research methods and laboratory projects.

405. CLINICAL PROGRAMS IN SPEECH AND HEARING THERAPY (3) LaFollette

Organization and administration of clinical programs in speech and hearing therapy. Prereq., 319, 320.

455. LANGUAGE FOR THE DEAF AND HARD OF HEARING (3) Richards

Stage by stage instruction for the teaching of speech to deaf and hard of hearing children of all ages. Prereq., 307, 319, 323 or equivalent.

465. LANGUAGE PROBLEMS OF THE BRAIN INJURED (3) Ham

Consideration of the neurological basis, pathological causes and speech and psychological implications of cerebral palsy, aphasia, and other types of brain injury, together with methods of therapy. Prereq., 320, 362 or permission.

476. RESEARCH DESIGN (3) Brandes, Penson

Instrumentation, research designs, areas of research, and significant findings in selected contemporary studies. Group or individual research projects.

492. SEMINAR IN SPEECH CORRECTION (3) LaFollette, Penson

Current literature and advanced research in the field of speech correction. Individual reading projects. Class reports and discussions.

494. RESEARCH (1 to 12) Staff

Individual guided research on special problems. Projects must be approved prior to registration. Prereq., permission, 8 hrs.

495. THESIS OR DISSERTATION (As recommended by dept.) Staff

Prereq., permission.

ECONOMICS

Professors Gubitz, Hellebrandt,
Levinson (chairman), Picard

Associate Professors Charle, Crewson, Darcy
Assistant Professors Bogar, Darnton, Gray, W. Hall

To begin a graduate major in economics, a student seeking the Master of Arts degree should have at least 30 semester hours in business administration and/or related social sciences, including Principles of Economics. For those pursuing any graduate degree, the same requirements apply in the choice of economics as a minor field.

A student may pursue the Master of Business Administration degree with his elective work in economics. See page 37 for the M.B.A. degree requirements.

304. REGIONAL ANALYSIS

(3) Darnton

Theories of regional and interregional relationships and policies for regional development. Consideration of economic, geographic, demographic, political, and social factors.

305. ECONOMICS OF TRANSPORTATION

(2 or 3 as scheduled) Staff

309. PUBLIC UTILITIES

(2 or 3 as scheduled) Bogar, Levinson

The economic basis of the public utility concept and its relation to business organization. The nature, scope, development, legal organization, and regulation of public utilities.

315. PUBLIC FINANCE

(3) Hall

Analysis of spending and taxing functions of federal, state, and local governments. The growing importance of fiscal policy in determining level of employment. The economic effects of the various taxes of federal, state, and local governments.

320. ORGANIZATION AND STRUCTURE OF INDUSTRY

(3) Bogar, Gray

Emphasizes the economic characteristics of the principal manufacturing and processing enterprises, and considers their historical development, financial organization, and legal aspects.

325. ECONOMIC POLICY AND INDUSTRIAL ORGANIZATION

(3) Bogar

An examination of the social consequences of monopoly and competition, trends in industrial concentration, the consequences of bigness, the relationship between market structure and national income, and the concept of "workable" competition. National policy relating to economic concentration and market structure will be considered as well as the impact of this national policy on United States business.

329. COMPARATIVE ECONOMIC SYSTEMS

(2 or 3 as scheduled) Crewson

An analysis of the institutional framework of the following systems: modified capitalism, socialism, communism, and fascism. Special emphasis is given to the prevailing economic institutions in the United States, Great Britain, Russia, and Spain.

330. HISTORY OF ECONOMIC THOUGHT

(2 or 3 as scheduled) Picard

The historical evolution of the major economic doctrines; mercantilists and cameralists, physiocrats, Adam Smith and the classical school, the historical school, the Austrian school, Alfred Marshall and the neoclassicists.

332. MODERN ECONOMIC THOUGHT

(2 or 3 as scheduled) Picard

An analysis of the contributions to economics of the most significant writers since Alfred Marshall.

333. ECONOMIC THEORY

(2 or 3 as scheduled) Bogar, Gray

An intensive study of the price system as an allocative mechanism. This includes the price and production policies of individual firms under alternative market conditions and an analysis of the effect of these policies on the social efficiency of resource allocation.

335. LABOR ECONOMICS

(3) Levinson

Survey of the economic forces generating modern labor problems. Among the topics considered are: history of the labor movement, labor in politics, labor-management relations, wages, and full employment.

338. LABOR LEGISLATION (2 or 3 as scheduled) Levinson

Survey of the law bearing upon labor problems. Among the topics considered are labor-relations legislation, old-age and unemployment insurance, workmen's compensation, and wages-and-hours legislation. Prereq., 335.

342. INTERNATIONAL ECONOMICS (2 or 3 as scheduled) Bogar

A study of the economic relations of nations of the world. Some of the topics considered are: the economic basis for international trade and investment; the mechanics of international exchange; tariffs, quotas, exchange control, cartels, and state trading as devices of economic nationalism; and international economic cooperation with special reference to organizations affiliated with the United Nations.

350. NATIONAL INCOME AND EMPLOYMENT ANALYSIS (3) Bogar, Gray

A study of the factors which determine the level of the nation's economic activity and which are responsible for growth and stability in the nation's economy. Part of the course is devoted to measures of the national income while the remainder consists of an analysis of the interrelationships among production, price levels, relative prices, employment, and capital formation.

355. MATHEMATICAL ANALYSIS IN ECONOMICS (3) Staff

Designed to acquaint the student with rudimentary mathematical techniques and their application to economic analysis. Problems and examples.

375. ECONOMIC DEVELOPMENT (3) Crewson

An analysis of the nature of, obstacles to, and future possibilities for the economic growth of nations. Special emphasis is given to the problems of the underdeveloped countries. Studies of selected countries are utilized.

380. STUDIES IN ECONOMICS (1 to 3) Staff

Directed readings and/or research in selected fields of economics. Topics selected by student with advice of staff member. Prereq., permission.

381. RESEARCH IN ECONOMICS (1 to 8) Staff

Prereq., permission.

391. SEMINAR IN ECONOMICS (2 to 4) Staff

Maximum credit in course, 10 hrs. Prereq., permission.

450. ADVANCED ECONOMIC THEORY (3) Staff

Partial and general equilibrium aspects of markets and prices with emphasis on economic theory as an aid to understanding the allocation process. The relevance of the market environment to the individual decision maker is stressed. Prereq., permission.

451. ADVANCED ECONOMIC THEORY (3) Staff

An application of Keynesian and Post-Keynesian macroeconomic theories to the determination of income, employment, and prices. A study of the aggregative framework within which individual decisions are made. Prereq., permission.

495. THESIS (1 to 6) Staff

Prereq., permission.

EDUCATION

Professors Crowell (dean) Hicks, Hill,
Shoemaker, Shuster

Associate Professors Boyd, Cooper, Evans, Felsingher,
D. Green, Hummel, Krantz, Lynn, Milliken, Mills,
Quick, C. Roberts, Stanger, Sligo

Assistant Professors Deland, Dressel, Johnson,
Raines, Roaden
Lecturer Ray

Students wishing to pursue advanced work in education and to qualify for school positions requiring the master's degree or to work beyond the master's degree may select from a variety of programs leading to the Master of Education degree and to the Doctor of Philosophy degree. In addition to the degree programs, Professional Competence Programs of advanced work are available in the areas of the Ph.D. majors.

MASTER OF EDUCATION

Students wishing to major in education may have a program of study arranged with a minimum of 27 hours of course work and Education 495—Thesis, or a program of study with a minimum of 30 hours of course work and Education 478—Seminar in Education.

MAJOR AND MINOR PROGRAMS

Programs of preparation for the most common professional goals of graduate students seeking the Master of Education degree are described in the following sections. A minor in education will be arranged for interested students, to meet individual needs. Students seeking certification, in the state of Ohio and other states, for administrative, supervisory, and pupil personnel services positions should seek advice from their major advisers regarding requirements. The majors described in the following sections, insofar as certification may be involved for the field in question, will usually provide the course requirements for the Ohio certificate appropriate to the field.

General Requirements for the Master of Education in education:

To provide a common basis in the field underlying all aspects of education, all majors in any phase of education are required to complete the following:

History or Philosophy of Education (one course)

Introduction to Graduate Study (Education 488)

Thesis (Education 495) or Seminar in Education (Education 478)

MAJORS IN EDUCATION

The College of Education staff has prepared programs of study in several areas of specialization. These are listed below with brief comments as to their several purposes. These programs are further delineated in mimeographed form. These detailed programs, including required courses and suggested electives, may be secured from the Graduate Committee in Education or from a College of Education staff member in the specialty of interest to the inquirer.

ELEMENTARY EDUCATION: A program for elementary teachers who wish to pursue graduate study which provides a broad base of understanding of the problems of the elementary school, its curriculum, and its population. This program is the first phase of the graduate education required for all advanced programs in elementary education.

For students whose baccalaureate degrees represent majors in other fields, such as fine arts or liberal arts, additional hours in prerequisite general or professional courses may be required.

GUIDANCE AND COUNSELING IN ELEMENTARY SCHOOLS OR IN SECONDARY SCHOOLS: These majors, leading to the Master of Education degree, qualify the candidate by training for the Ohio School Counselor Certificate, Provisional. A minimum of 20 semester hours in guidance, including supervised practicum, are required by the State Department of Education. Students wishing to major in guidance must apply in person for admission and be interviewed by a member of the staff in Counselor Education.

EDUCATIONAL ADMINISTRATION: The general and specific courses taken in the Master of Education programs in educational administration are designed to provide for the minimum requirements for provisional Ohio state certification as elementary school principals, secondary school principals, and administrators of local school districts, while completing the University program necessary for a master's degree. These master of education programs constitute the first phase of the various advanced programs in educational administration.

CURRICULUM AND SUPERVISION: The general and specific areas included in this program meet the minimum course requirements for Ohio provisional certification as a supervisor. The program is designed for those who are beginning preparation for positions in curriculum and supervision. The master of education program is considered the first phase of a two-year program.

SECONDARY EDUCATION: A program for secondary teachers who wish to pursue graduate study which provides a broad base of understanding of the problems of the secondary school, its curriculum, and its population.

A person pursuing this program should select a minor or joint minors representing his teaching field(s).

PROFESSIONAL COMPETENCE PROGRAMS

Students who hold the master's degree with appropriate professional background may pursue advanced work in "Professional Competency Programs." These consist of approximately 30 semester hours of selected work planned to advance the student's competence to perform duties associated with certain types of educational positions. The sixth year of work is now offered in Business Administration in Education, Counselor Education in Higher Education, Curriculum and Supervision, Educational Administration, Elementary Education, Guidance and Counseling in Secondary Education, Guidance in Elementary Education, and Student Personnel Services in Higher Education. Descriptions of these programs are available from the Graduate Committee in Education or from a College of Education staff member in the specialty of interest of the inquirer.

DOCTORAL PROGRAMS IN EDUCATION

Advanced preparation which may lead to the Doctor of Philosophy Degree is offered with majors in Business Administration in Education, Counselor Education in Higher Education, Curriculum and Supervision, Educational Administration, Elementary Education, Guidance and Counseling in Secondary Education, Guidance in Elementary Education, and Student Personnel Services in Higher Education. Minors for the doctorate are available in these and other areas of education and in other departments of the University.

Students admitted to do work beyond the master's degree are first admitted to "Post-master's Study" in education. After the equivalent of one semester's work, such students are expected to apply for admission to "The Division of Advanced Studies in Education." This admission is based upon a review of the student's qualifications, successful completion

of an advanced seminar, and upon the results of certain examinations. If admitted to "The Division of Advanced Studies in Education," the student is assisted by an advisory committee to develop the remainder of his program.

Details of the other requirements for the doctorate and detailed statements about doctoral programs in education may be secured from the Graduate Committee in Education or from a College of Education staff member in the specialty of interest of the inquirer.

ELEMENTARY EDUCATION

303. ADVANCED STUDIES OF CHILDREN (3) Quick

An intensive study of certain basic research in child development and its implications for education. Prereq., permission.

310. READING LABORATORY PRACTICUM (1 to 6) Cooper

Application of developmental approach to problem cases in reading instruction — participation in diagnostic examination, parent and teacher conferences, individual procedures in tutoring, staffing of cases, and preparation of reports; weekly group discussion period (W 3, 4), laboratory sessions arranged. Prereq., permission.

411. PROBLEMS IN THE ELEMENTARY CURRICULUM (3) Quick

A critical study of the basic issues and theories underlying curriculum development. Prereq., permission.

417 a,b,c,d,e. RESEARCH AND CURRICULUM IN ELEMENTARY EDUCATION

Critical evaluation of the literature and recent research on objectives, current, and methodology. History of instruction, current problems and issues, recent trends, and emphasis in teaching practices. Impact of dominant theories of learning and philosophies of education. Research design and methodology in scientific investigations. Prereq., 488, permission.

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|--------------------------|-----|-----------|
| a. SOCIAL STUDIES | (3) | Felsinger |
| b. ARITHMETIC | (3) | Staff |
| c. LANGUAGE ARTS | (3) | Cooper |
| d. READING | (3) | Cooper |
| e. SCIENCE | (3) | Mills |

SPECIAL EDUCATION — ELEMENTARY

321. ORGANIZATION OF SPECIAL EDUCATION FOR EXCEPTIONAL CHILDREN (3) DeLand

Educational needs of those who differ markedly from normality — the slow-learning, the retarded, and the gifted, the physically handicapped; the emotionally unstable and socially maladjusted; their characteristics and incidences. Adjustments within regular classrooms, special classes, and special schools; individual child study, classification, and follow-up.

322. CURRICULUM AND PROGRAM DEVELOPMENT FOR SLOW-LEARNING CHILDREN (3 to 9) Staff

325. PROBLEMS IN EDUCATION — THE SLOW LEARNER (2 to 6) DeLand

SECONDARY EDUCATION

333. EXTRA-CLASS ACTIVITIES IN THE SECONDARY SCHOOL (3) Lynn

The scope and organization of extra-class activities in the high school and their relationship to the curriculum. Prereq., permission.

374. IMPROVEMENT OF READING IN SECONDARY SCHOOLS (2) Cooper

The teaching of reading as a developmental process, with special reference to extending instruction beyond the elementary school; instructional materials and procedures for individuals and groups; adapting programs to individual differences; reading in the content fields; fostering growth in concepts; vocabulary and reading habits.

432. THE HIGH SCHOOL CURRICULUM (3) C. Roberts

The high school program of studies, contributions of various subjects, theories of curriculum construction, curriculum research, and desirable steps in the reorganization of the high school curriculum. Prereq., 359.

PROFESSIONAL LABORATORY EXPERIENCES

472. LABORATORY SCHOOL PROBLEMS (2) Staff

Prereq., permission.

473. SUPERVISION OF STUDENT TEACHING (2 to 6) Staff

Designed to prepare students for the work of the supervising teacher in a college or university. Prereq., permission.

GENERAL EDUCATION

358. WORKSHOP IN ECONOMIC EDUCATION (3) Staff

A study of basic economic concepts and practical economic problems with the view to their integration into the school curriculum. Prereq., permission. (Summer only.)

359. GENERAL CURRICULUM (3) Staff

A critical study of the public school curriculum including a review of curricular theories, practices, and trends in grades kindergarten through twelve. Special emphasis is given to problems in curriculum development and organization. Prereq., permission.

388. CONSERVATION EDUCATION WORKSHOP (6) Staff

A field course designed primarily for teachers in service. Relationships between conservation and the natural sciences primarily for the elementary and junior high school teacher. Approval of adviser. (Summer only.)

416. READINGS AND RESEARCH IN HUMAN DEVELOPMENT (3) Stanger

Interpretation of the scientific literature on human development as related to classroom experience in kindergarten through twelfth grade. Independent projects delineating the developmental bases for understanding and solving selected educational problems. Prereq., 303 or permission.

428. ADVANCED PRINCIPLES OF TEACHING (3) Staff

A critical appraisal of research on learning and teaching. Prereq., permission.

450. HIGHER EDUCATION (3) Hill

A survey of the background and growth of higher education in the United States. Present status of various types of institutions will be studied. Prereq., permission.

478. SEMINAR IN EDUCATION (2) Staff

Advanced studies of special problems in elementary education, guidance, secondary education, and school administration. Prereq., permission.

479. CONTEMPORARY COMPARATIVE EDUCATION (3) Ray

A comparative study of the national systems of education with special emphasis on international cooperative programs of education viewed in terms of purposes, administration, and curriculum. Prereq., post-masters standing.

491-492. ADVANCED SEMINAR IN EDUCATION (3-3) Staff

Current literature and advanced research in education. Individual reports and discussion. Required of first-year, post-masters students. Prereq., permission.

GUIDANCE AND COUNSELING**360. GUIDANCE PRINCIPLES (3) Staff**

The need for guidance in the schools, the nature of guidance, and the major guidance services.

361 a,b,c. GUIDANCE AND COUNSELING PRACTICUM (1 to 3) Staff

Directed practice in counseling and other guidance and student personnel services. Prereq., 360 or 367 and permission.

- a. Elementary School
- b. Secondary School
- c. College and University

362. INFORMATION SERVICE IN GUIDANCE (3) Hill

The collection, evaluation, and use of occupational, educational, and related information in the guidance program. Prereq., 360 or 367.

363. INDIVIDUAL ANALYSIS IN GUIDANCE (3) Green

Use of cumulative records, case study procedures, sociometric tests, group processes, and the like in guidance. Synthesis of information about the client. Prereq., a course in measurement or equiv.; 360 or 367.

364. COUNSELING IN SCHOOLS (3) Staff

Basic principles of counseling in an educational context. Development of sound procedural bases for counseling and educationally oriented counseling theory. The ethics of counseling. Prereq., 360 or 367.

365. IDENTIFICATION AND GUIDANCE OF ABLE YOUTH (3) Staff

A comprehensive treatment of the characteristics of superior, talented, and able youth. Methods of identification of the able. Special problems of guidance and education of the able so that they may more fully utilize their talents. Lecture, readings, demonstrations. Prereq., permission.

366. GUIDANCE TECHNIQUES FOR THE ABLE (3) Staff

A special program of study and practice in testing, counseling, informational service, follow-up and group techniques with special application to the needs of able youth. Prereq., 360 or 367.

367. GUIDANCE IN ELEMENTARY SCHOOLS (3) Raines

The need for guidance in the elementary school. The nature of guidance and of the guidance services in elementary education.

461. WORKSHOP IN GUIDANCE (1 to 3) Staff
Prereq., 360 and permission.
462. FIELD EXPERIENCE IN GUIDANCE (2 to 4) Staff
Supervised field work. Periodic campus conferences and visitations are required. Prereq., 361 and permission.
464. ADMINISTRATIVE RELATIONS IN GUIDANCE (3) Hummel
The organization and administration of guidance, community relations, legal bases for guidance. Prereq., 360 or 367.
465. GROUP GUIDANCE: MATERIALS AND PROCEDURES (3) Raines
The theoretical bases for group work in guidance. Materials and teaching procedures for group work. Laboratory work in Guidance Laboratory and Materials Center. Prereq., 360 or 367.
- 467 a, b, c, 468 a, b, c. ADVANCED PRACTICUM IN GUIDANCE AND COUNSELING (2 to 5, 2 to 5) Staff
Directed practicum for advanced students in guidance and student personnel. Major attention to counseling theory and practice. Prereq., post-master's standing and permission.
 a. Elementary School
 b. Secondary School
 c. College and University

HISTORY AND PHILOSOPHY

350. THE HISTORY OF EDUCATION (3) Shoemaker
Studies the agencies of education and the social forces which have conditioned them during ancient, medieval, and modern times.
351. THE SCHOOL IN THE SOCIAL ORDER (3) Shoemaker
Education in the United States from the colonial period to the present. The social, political, economic, religious, and philosophical foundations which have conditioned the evolution of the public schools.
353. THE EVOLUTION OF EDUCATIONAL THOUGHT (3) Shoemaker
Deals solely with the educational writings of such theorists as Plato, Aristotle, Quintilian, Montaigne, Locke, Comenius, Rabelais, Rousseau, Pestalozzi, Froebel, Herbart, and Dewey.
454. PHILOSOPHY OF EDUCATION (3) Shoemaker
A comparison of pragmatism, idealism and realism as philosophical bases for education. Each student is helped to formulate his philosophy of education.

RESEARCH AND SCIENTIFIC TECHNIQUES

381. EDUCATIONAL STATISTICS (3) Sligo
The tabulation and graphical representation of frequency tables, measures of central tendency, percentiles and percentile curves, measures of variability, probability and the normal curve, testing, statistical hypothesis, and correlation.
382. ADVANCED EDUCATIONAL STATISTICS (3) Sligo
Nonlinear relations, partial correlation, multiple correlation, regression, various methods of correlation, and the interpretation of correlation coefficients. Practice in the use of logarithms, statistical tables, and calculating machines. Prereq., 381.

385. EDUCATIONAL MEASUREMENTS (3) Sligo
 The improvement of the essay examination; criteria for evaluating tests; teacher-made objective tests; standardized tests; elementary statistical procedures.
483. RESEARCH IN EDUCATIONAL STATISTICS (1 to 6) Sligo
 An advanced course in statistics dealing with the derivation of formulae, the analysis of relationships, and the interpretation of results. Prereq., 382 and permission.
484. RESEARCH IN EDUCATION (1 to 6) Staff
 Prereq., permission.
488. INTRODUCTION TO GRADUATE STUDY (3) Staff
 Methods of research in education and the selection, planning, and evaluation of research problems. The history and purposes of graduate education. Required of all graduate students in education. Prereq., permission.
495. THESIS OR DISSERTATION (As recommended by dept.) Staff
 Prereq., permission.

SCHOOL ADMINISTRATION AND SUPERVISION

335. WORKSHOP IN ELEMENTARY SCHOOL ADMINISTRATION (2) Staff
340. SCHOOL PUBLIC RELATIONS (2) Staff
 The function of school administration in public understanding of the school's work and furthering lay participation in determination of school policy.
410. ADMINISTRATION OF THE ELEMENTARY SCHOOL (3) Shuster
 The responsibilities of teachers and principal in administration, curriculum construction, supervision, plant management, and public relations. Prereq., 440.
430. HIGH SCHOOL ADMINISTRATION (3) Lynn
 (Same description and prereq. as 410.)
440. GENERAL SCHOOL ADMINISTRATION (3) Staff
 An introduction to educational administration.
441. STATE, NATIONAL AND INTERNATIONAL SCHOOL ADMINISTRATION (3) Ray
 The state program of education, state responsibility, educational organization, certification and tenure, national educational services, federal relations to education, national problems in education, and international relations to education. Prereq., 440.
442. SCHOOL FINANCE (2) Ray
 Local, state and federal; business management in such areas as the school budget financial reports, school purchasing, transportation, and insurance. Prereq., 440.
443. SCHOOL LAW (3) Ray
 The constitutional basis for education, schools and their legal setting, and school legislation and court decisions, with special reference to Ohio school law. Prereq., 440.

444. SCHOOL PLANT MAINTENANCE AND OPERATION (3) Roaden

Principles and practices in the administration of school plant operations and maintenance. Designed primarily for local school administrators and directors of maintenance and operations, the course covers such areas as organization of the program; selection and training of personnel; care and repair of buildings; purchasing and handling supplies and equipment. Prereq., permission.

445. SCHOOL PLANT PLANNING (3) Roaden

Principles, practices, and problems in the administration of the school building program. Includes evaluation of existing facilities; surveying needs; planning programs; developing educational specifications; selection of the architect; attaining efficiency and economy through design and construction; equipping the plant and financing the building program. Prereq., 440.

446. SUPERVISION OF INSTRUCTION (3) Staff

The principles underlying supervision and techniques which promote the growth of teachers in service. Laboratory experiences in analysis of teaching situations. Prereq., permission.

447. PERSONNEL PROBLEMS IN PUBLIC SCHOOLS (3) Krantz

Philosophy of personnel administration, development of policies covering selection, classification, certification, tenure, contracts, in-service training programs, and placement of teaching and non-teaching personnel in the schools. Prereq., 12 hours.

448-449. ADVANCED THEORY AND PRACTICES OF SCHOOL ADMINISTRATION (3-3) Hicks

Prereq., permission.

451. ADVANCED SCHOOL BUSINESS ADMINISTRATION (3) Hicks

The role of business administration in public education; principles and practices of auditing, budget preparation and control, debt service insurance, legal aspects, payroll administration, personnel administration, plant operation and maintenance, purchasing, school plant planning, and supply management. Prereq., 442 and permission.

452. PROBLEMS IN SCHOOL BUSINESS ADMINISTRATION Staff

Intensive one-week courses, each covering a phase of business administration of public schools. Each course consists of twenty hours of lecture and fifteen hours of laboratory activities. Prereq., permission.

452a. ADMINISTRATION OF PUPIL TRANSPORTATION (1) Staff

Topics covered include selection, training, and supervision of bus drivers; preparation of specifications for purchase of buses; supervision of the servicing and maintenance of buses; route scheduling, pupil control, public relations, insurance problems of transportation, school bus safety.

453. SEMINAR IN SCHOOL-COMMUNITY RELATIONS (3) Staff

New concepts and specific techniques in school-community relations; public involvement in educational planning; educational involvement in community planning. Prereq., permission.

455. ADVANCED SCHOOL PLANT PLANNING (3) Roaden

Designed primarily for advanced graduate students in school administration who possess a particular interest in school plant planning. Largely oriented toward specific planning problems, the course provides opportunity for depth treatment of areas of interest to the student as well as a greater understanding of problems encountered in planning educational facilities.

- 456. SCHOOL PLANT MAINTENANCE AND OPERATION (3) Roeden**
 Includes custodial problems of maintenance and operation, care and repair of buildings, purchasing and handling of supplies and equipment, insurance practices and procedures. Prereq., 440.
- 474. THE ADMINISTRATION OF TEACHER EDUCATION (3) Staff**
 Prereq., permission.

ENGINEERING AND TECHNOLOGY E. J. Taylor (dean)

Chemical
 Civil
 Electrical
 Mechanical

Programs of graduate study may be formulated with majors in chemical, civil, electrical, or mechanical engineering.

The standard four-year course in engineering or its equivalent, as offered in institutions approved by the Engineers' Council for Professional Development, is a general prerequisite for graduate study. Graduates in science and other fields of engineering, whose programs have included sufficient courses in mathematics, physics, chemistry, the humanities, and the social sciences, may be accepted as graduate students. Such students must take such undergraduate courses in basic engineering subjects as the staff may require.

- 380. COLLOQUIUM (1) Staff**
 Prereq., approval by chairman of department in which work is performed. (2nd sem., yearly.)
- 391. SEMINAR (1 to 3) Staff**
 Prereq., approval by chairman of department in which work is performed.

CHEMICAL ENGINEERING Assoc. Professors H. B. Kendall
 (chairman), Mayer
 Assistant Professors Baasel, Baloun

GRADUATE WORK IN CHEMICAL ENGINEERING

Graduate students working toward a master's degree in chemical engineering are expected to take at least fifteen hours in graduate level chemical engineering courses, including the following four courses:

- ChE 301—Applied Chemical Engr. Calc. (3)
 ChE 401—Adv. Chemical Engineering Thermodynamics (3)
 ChE 410-411—Adv. Transport Phenomena (3-3)

Students who choose to do so may also complete requirements for a minor field by selecting at least nine hours of graduate courses in other fields of engineering, or in mathematics, chemistry, physics or materials science. All resident graduate students are expected to participate in departmental graduate seminars each semester.

Listed courses would also be suitable for a minor in chemical engineering.

- 301. APPLIED CHEMICAL ENGINEERING CALCULATIONS (3) Staff**
 Calculations involved in unsteady-state heat and mass transfer. Setting up of ordinary and partial differential equations corresponding to typical chemical engineering situations, and the methods available for their solutions, including computer and graphical techniques. Prereq., 311 or permission.

305. APPLIED ENGINEERING STATISTICS (3) Staff

Statistical design and analysis of engineering experiments. The use of statistics to obtain the maximum information from experimental data. Prereq., permission.

310-311. UNIT OPERATIONS (3-4) Staff

Fundamental principles of fluid flow, heat and mass transfer, and other basic unit operations with problems to illustrate the principles. Laboratory in 311 emphasizes uses of digital and analogue computers. Prereq., Chem. 313 or with 313, or permission.

312. UNIT OPERATIONS LABORATORY (2) Staff

Laboratory practice to illustrate the principles of selected unit operations and processes and to aid the students in gaining confidence in handling pilot plant equipment. Development of ability to devise and conduct experiments with minimum supervision, and to report results satisfactorily, is stressed. Prereq., 311.

320. UNIT PROCESSES (3) Staff

Investigation of typical industrial chemical processes from the viewpoint of the unit steps involved. Typical inorganic and organic processes are studied. Emphasis is upon the application of thermodynamic and kinetic theory, and on raw material and energy sources, to the lay-out and design of equipment and processes. Prereq., 310 or permission.

330. METALLIC CORROSION (3) Staff

Electrochemical nature of corrosion; high temperature oxidation. The influences of various atmospheres, and of stress, strain, and structure on corrosion. Corrosion prevention. Prereq., permission.

333. TRANSFORMATIONS IN METALLIC SOLIDS (3) Staff

Mechanisms and kinetics of reactions in metallic solids. Diffusion, eutectoid, precipitation, martensite, and other solid reactions. Morphological and orientation changes occurring with reactions. Prereq., permission.

340-341. DESIGN AND INSTRUMENTATION (4-3) Staff

Project work involving chemical process design, including evaluation and extension of fundamental data by calculation, choice of operating conditions, estimation of costs, selection of equipment, and the application of automatic controls. Prereq., 311, 320, Chem. 314.

350. INTRODUCTION TO TRANSPORT PHENOMENA (3) Staff

Introduction to heat, mass, and momentum transfer from a theoretical basis. The presentation of boundary-layer theory and its comparison with other theoretical and semi-theoretical approaches. Prereq., 311.

390. SPECIAL INVESTIGATIONS (1 to 3) Staff

Individual or small group work, under guidance, in research or advanced study in a particular field of chemical engineering. Maximum credit, 6 hours. Prereq., permission from chairman.

401. ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS (3) Staff

Advanced thermodynamics study of chemical engineering processes, pure materials, and mixtures. Criteria of equilibrium for homogeneous and heterogeneous systems. Correlation and estimation of properties. Thermodynamics of irreversible processes. Prereq., permission.

- 410-411. ADVANCED TRANSPORT PHENOMENA** (3-3) Staff
 Development of heat, mass, and momentum transfer from a theoretical basis. The presentation of boundary layer theory and its comparison with other theoretical and semi-theoretical approaches. Prereq., 311, permission.
- 415. ADVANCED CHEMICAL ENGINEERING OPERATIONS** (3) Staff
 Selected topics from absorption and extraction; multicomponent, azeotropic, and extractive distillation; non-ideal separation processes. Prereq., 311, permission.
- 420. ADVANCED PROCESS THEORY** (3) Staff
 The use of chemical engineering kinetics and the principles of similarity and model theory in the scale-up of pilot plants. Special emphasis on the use of chemical similarity in reactor and plant design. Prereq., permission.
- 440. PROCESS DYNAMICS** (3) Staff
 Systems analysis. The use of automatic control in chemical processes. Determination of the stability of processes containing feedback. Prereq., 340, permission.
- 481. RESEARCH IN CHEMICAL ENGINEERING** (1 to 4) Staff
 Prereq., permission.
- 490. SPECIAL TOPICS IN CHEMICAL ENGINEERING** (1 to 3) Staff
 Advanced study in a particular field of chemical engineering. Prereq., permission.
- 491-492. READINGS AND SEMINAR** (1-1) Staff
 Assigned readings and special reports in selected areas of chemical engineering theory and practice. Prereq., permission.
- 495. THESIS** (1 to 6) Staff
 Prereq., permission.

CIVIL ENGINEERING

Professor Shermer (chairman)

Associate Professor Badger
Assistant Professors Kaneshige, Russ**GRADUATE WORK IN CIVIL ENGINEERING**

In civil engineering, master's degrees may be earned in the fields of applied mechanics, sanitation, soil mechanics, structures, or transportation. In addition to graduate courses offered by the department in these areas, many courses offered by other departments satisfy the requirements of the student's major. For example, a student majoring in applied mechanics might do some of his major work in the departments of Mechanical Engineering or Physics, and a student majoring in Sanitation might do major work in chemistry or bacteriology.

An acceptable program outline follows:

| | |
|--|---------------|
| Civil Engineering courses | 9 hours |
| Courses related to and counting toward the major | 3 hours |
| Mathematics | 6 hours |
| Approved electives in any of the above | 8 to 10 hours |
| Research and Thesis | 4 to 6 hours |

313. ADVANCED SURVEYING PROBLEMS (2) Staff
Advanced problems in plane surveying and problems in geodetic surveying. 1 lec., 2 lab. Prereq., permission.
314. PHOTOGRAMMETRY (3) Staff
Equipment and methods used in aerial photography and land measurement. Prereq., permission.
324. FLUID MECHANICS II (3) Russ
A comprehensive treatment of fluid state and flow, water hammer, and hydraulic machinery, with engineering application. Prereq., permission.
325. SOIL MECHANICS II (3) Staff
Advanced theories of stress-strain, seepage, earth pressure, consolidation and stability in soils. 3 lec.
326. ADVANCED STRENGTH OF MATERIALS (3) Staff
Theories of failure, stresses and strains at a point, curved beams, torsion. Prereq., permission. (1st sem.)
327. FOUNDATION ENGINEERING II (3) Staff
Analysis and design of substructures to meet various soil conditions. 2 lec., 2 lab.
328. THEORY OF ELASTICITY (3) Adams
Theorems relating to stress-strain relationships for elastic materials. Two and three-dimensional stress-strain analyses. Torsion and bending of prismatic bars. Prereq., 326, permission. (2nd sem.)
329. THEORY OF STABILITY (3) Adams
Buckling of members under lateral and transverse loads. Effect of eccentric loads and beam curvature. Buckling of truss members. Prereq., permission.
330. STRUCTURAL THEORY II (3) Shermer
Statically indeterminate structures. (2nd sem.)
331. STRUCTURAL DESIGN (3) Shermer
A study of the design of reinforced concrete members and structures, and a continuation of steel design. Prereq., 330 or with 330. (2nd sem.)
332. STRUCTURAL DESIGN (3) Shermer
Design of indeterminate structures. Modern design concepts and principles as applied to various construction materials. Prereq., 331, permission.
335. EXPERIMENTAL STRESS ANALYSIS (3) Staff
Model analysis of rigid frames by means of deformeters. Use of strain gages, stress coats, and deflection gages for stress analysis. Use of photoelastic equipment. 2 lec., 2 lab. Prereq., 326, 330, permission.
340. STRUCTURAL ANALYSIS (3) Shermer
Analysis of indeterminate structures by both classical and modern methods, analysis of multistory bents, arches, closed rings, and frames with variable cross-sections, plastic theory and design. Prereq., 330, permission. (1st sem.)
341. STRUCTURAL ANALYSIS (3) Shermer
Continuation of 340, shell structures. Prereq., 340.

349. ADVANCED WATER TREATMENT (3) Kaneshige
Advanced study of water treatment theory. Design of treatment units. Practice in control methods. 2 lec., 2 lab. Prereq., permission.
350. ADVANCED SANITARY ENGINEERING (3) Kaneshige
Advanced study of sewage treatment theory. Design of treatment units. Practice in control methods. 2 lec., 2 lab. Prereq., permission.
361. TRAFFIC ENGINEERING (3) Staff
Principles of highway and street traffic movements, traffic analysis and control as affecting the geometric design of roadways and parking facilities; evaluation of airport traffic. 2 lec., 2 lab.
362. PAVEMENT DESIGN (3) Staff
Rational and empirical design methods for rigid and viscoelastic layered pavement systems. 3 lec.
363. SOIL STABILIZATION (3) Staff
Requirements for and factors affecting soil stability, methods of stabilizing soils, design and laboratory testing of stabilized soils. 2 lec., 2 lab.
364. BITUMINOUS PAVING MATERIALS (3) Staff
Manufacture, constituents, chemical behavior, specifications and laboratory tests of bituminous materials and their reaction with aggregates. 2 lec., 2 lab.
390. SPECIAL INVESTIGATIONS (1 to 3) Staff
Prereq., permission.
481. RESEARCH IN CIVIL ENGINEERING (1 to 4) Staff
Prereq., permission.
495. THESIS (1 to 6) Staff
Prereq., permission.

ELECTRICAL ENGINEERING Professor Quisenberry (chairman)
 Associate Professors Hoffee, McFarland,
 Selleck, G. E. Smith
 Assistant Professors Andersen, Fahey, Niesse
 Instructors Essman, Huff
 Lecturer Cartland

GRADUATE WORK IN ELECTRICAL ENGINEERING

The Master of Science degree may be earned in all major fields of electrical engineering.

Courses in the 300 level required for the bachelor's degree may not be used as credit toward the master's degree in electrical engineering.

301. COMMUNICATION ENGINEERING I (4) Essman
A study of the propagation of electrical energy along transmission lines and the analysis of four terminal networks in form appropriate for communication engineers: transmission lines; two port network analysis; filters; coupled circuits; impedance matching; and attenuators. 3 lec., 2 lab.

302. COMMUNICATION ENGINEERING II (4) Essman

A unified approach to the study of communications stressing the principles common to all information transmission systems; measurement of information; Fourier Series; Fourier Integral; frequency spectrum; time response; amplitude modulation (double and single sideband); frequency modulation; sampling theory; pulse modulation (PAM, PDM, PPM); noise and comparison of modulation systems. 3 lec., 2 lab.

310. SEMICONDUCTOR DEVICES AND CIRCUITS (3) G. E. Smith

Physics of semiconductors. Transistor equivalent circuits, amplifiers, oscillators, modulation and detection. 2 lec., 2 lab.

321. ULTRA HIGH FREQUENCY ENGINEERING (3) Hoffee

A study of the theory and techniques associated with ultra high frequency systems. Circuit elements, generation and synchronization of special waveforms, oscillators, amplification and transmission. 3 lec., lab arranged. Prereq., 335.

322. MICROWAVE THEORY AND DEVICES (3) McFarland

Generation, transmission, amplification, and radiation of electromagnetic energy in the frequency range 300 mcs upwards. Discussion of klystrons, magnetrons, waveguides, striplines, resonators, masers, lasers, and special antennas. 3 lec., lab. arranged. Prereq., 335.

325. ACOUSTICAL ENGINEERING (3) Cartland

Propagation of sound energy in free space and in enclosures. Analysis and measurements of acoustical systems; characteristics of electro-acoustic transducers. Design of horns and enclosures. A study of acoustic absorption and reflection in auditoriums. 2 lec., 2 lab.

330. STATISTICAL ANALYSIS OF SYSTEMS (3) Essman

Stationary time series, power density spectra, correlation functions, mean square error. Optimization of network in the presence of noise. Applications of probability theory and sampling theory. 3 lec.

331. SERVOMECHANISMS (3) Quisenberry

Automatic controller theory and analysis including the study of error-rate damping, integral control, signal-flow diagram applications, Routh-Hurwitz and Nyquist criteria, root-locus methods. 2 lec., 2 lab.

332. CONTROL OF ELECTRICAL MACHINERY (3) Selleck

Magnetic and electronic motor controllers, including a study of control theory and applications to given problems. 3 lec.

333. INTRODUCTORY SYSTEM ANALYSIS (3) Niesse

Signal representation; circuit models of mechanical and electrical systems, and circuit analysis; analysis of feedback systems. 3 lec.

335. ELECTROMAGNETIC FIELDS (3) McFarland

Discussion of electrostatic, magnetostatic, and time-harmonic electromagnetic fields. Development of Maxwell's equations from laws of Gauss, Ampere, and Faraday. Introduction to plane waves in dielectric media. 3 lec.

336. RADIATION AND PROPAGATION OF ELECTROMAGNETIC FIELDS (3) McFarland

Plane waves in dielectric and conducting media. Analytic solution to LaPlace's Equation with specified boundaries. Radiation, antennas and arrays, propagation for electromagnetic fields in space as pertaining to radar, communications, and research. 3 lec. Prereq., 335.

- 338. PLASMA DYNAMICS I** (3) Fahey
 Electron and ion orbits in electric and magnetic fields. Collision-free plasmas. Conductivity and permittivity tensors. Plasma sheaths. Transport phenomena and waves in plasmas. 3 lec. Prereq., 335.
- 339. PLASMA DYNAMICS II** (3) Fahey
 Macroscopic equations of plasmas. Consideration of stability and confinement. Magnetic compression. Hydromagnetic shocks. Radiation from Plasmas. 3 lec., Prereq., 338.
- 342. SYMMETRICAL COMPONENTS** (3) Quisenberry
 Circuits analysis by symmetrical components. Representation of unbalanced polyphase currents and voltages by component symmetrical sets; solutions of faults on power systems. 3 lec.
- 343. ELECTRICAL TRANSMISSION OF POWER** (3) Selleck
 Economic and electrical principles of transmission of electrical power, line equations and calculations, hyperbolic solution of long lines, insulation and protection against transients, mechanical principles and practical line construction. 3 lec. Prereq., 324.
- 344. ELECTRICAL DESIGN** (3) Selleck
 Fundamental design relations of electrical machinery and predetermination of performance. 3 lec.
- 345-346. PROBLEMS IN ADVANCED A. C. MACHINERY** (3-3) Staff
 Problems taken up deal with transient conditions in alternators, motors, and transformers. Applications of the methods of symmetrical components to unbalanced operating conditions. 2 lec., 2 lab.
- 351. AUTOMATIC PROCESS CONTROL AND INSTRUMENTATION** (3) Cartland
 Dynamic behavior of process control systems: pneumatic, hydraulic, chemical, electromagnetic. Measurements of transducers and feedback systems. Electronic data conversion and storage systems. 2 lec., 2 lab. arranged.
- 361. SEMINAR IN ELECTRONIC ANALOG COMPUTERS** (1) Niesse
 A study of the basic principles of analog computation. System response determined by means of the analog computer.
- 362. SEMINAR IN DIGITAL COMPUTER CIRCUITRY** (1) G. E. Smith
 Fundamentals of binary notation, Boolean algebra, and logical circuitry. The development of the characteristic equations of elementary circuits, of application equations, and the simultaneous solution of these to yield logical circuit combinations.
- 371. SYNTHESIS OF TWO TERMINAL NETWORKS** (3) Andersen
 A study of imittance functions leading to the realization of positive-real functions as impedances or admittances of two terminal networks. 3 lec.
- 380. SOLID STATE DEVICES I** (3) Staff
 Crystal structure, electronic properties of conductors, semi-conductors and insulators for the quantum approach; solid state devices. 3 lec. Not open to students taking Phys. 360.
- 381. SOLID STATE DEVICES II** (3) Staff
 Continuation of 380. 3 lec., Prereq., 380 or Physics 360.

390. SPECIAL INVESTIGATIONS (1 to 4) Quisenberry
Assignments in special areas of interest. Prereq., permission.
401. ELECTRICAL STATION DESIGN (3) Selleck
The application of economic principles to the problems of electric generating station design, selection of apparatus, balancing initial and subsequent costs, interrelation of the mechanical and electrical elements of design. 3 lec.
403. ADVANCED ENGINEERING ANALYSIS (3) G. E. Smith
The general theory of methods in modern engineering analysis. The application of convergent series to the solution of problems by engineering approximations of various degrees. The use of graphical methods in linear and non-linear situations. Dimensional analysis and equation checking as applied to engineering problems. The development of a basic philosophy of approach to engineering problems. 3 lec.
404. NON-LINEAR ANALYSIS (3) Niesse
Introduction to the steady-state and transient analysis of physical systems containing non-linear elements. Discussion of analytical, numerical, and graphical methods. Analysis of singular points, stability and non-linear control systems. 3 lec.
405. SYSTEM STABILITY STUDIES (3) Quisenberry
Studies of technical problems pertaining to power systems. Both synchronous and asynchronous loadings are considered. Maximum use is made of digital computer techniques and matrix algebra. 3 lec. Prereq., 342.
406. ELECTROMECHANICAL SYSTEMS (3) Essman
A theoretical treatment on electromechanics. Variational method based on Hamilton's Principle. Dynamics of Transducers. Generalized machine. Space harmonic analysis. 3 lec.
410. NETWORK SYNTHESIS (3) Andersen
Realizability and synthesis of driving point impedance; synthesis for prescribed transfer functions, and for a prescribed time response. 3 lec.
411. SYNTHESIS OF FOUR-TERMINAL NETWORKS (3) Andersen
Properties of four-terminal networks. Realization methods. Approximation functions and scaling. 3 lec. Prereq., 371 or 410.
420. CONTROL SYSTEM SYNTHESIS (3) Quisenberry
Signal flow diagram theory, return difference and sensitivity, synthesis of active and passive networks, control systems with compensation networks synthesized from the open loop and fixed elements transfer functions. 3 lec. Prereq., 331.
481. RESEARCH IN ELECTRICAL ENGINEERING (1 to 4) Staff
Prereq., permission.
- 491, 492. ADVANCED SEMINAR IN ELECTRICAL ENGINEERING (1,1) Quisenberry
Topics of general interest to all graduate students in electrical engineering. Prereq., permission.
495. THESIS (1 to 6) Staff
Prereq., permission.

MECHANICAL ENGINEERING

Professor P. H. Black (chairman)
 Associate Professors Adams, Hicks,
 Lausche, Smith
 Assistant Professors Beale, Sweeney

In mechanical engineering the Master of Science degree is offered with majors in mechanical design and in thermodynamics. Supporting courses for the major may be in other areas, such as advanced mechanics, and in related electrical engineering subjects.

The fields accepted for the minor should be related to the major as, for example, mechanical design, thermodynamics, metallurgy, mathematics, physics and chemistry.

Thesis subjects are generally of types as follows: Experimental Investigations, Mechanical Design, Analytical Investigations and Theoretical Research.

302. DYNAMICS OF MACHINERY

(3) Staff

Analytical and graphical studies of velocities and accelerations, and of static and inertia forces in machinery; engine force analysis and balancing of machinery. (2nd sem., yearly.)

303. MACHINE DESIGN I

(3) Black

Application of mechanics, mechanism, materials, and mechanical processes to the design and selection of machine members and units of power transmission.

304. MACHINE DESIGN II

(3) Sweeney

Application of the work covered in 303 to the design of complete machines and sub-assemblies. Emphasis is on creative design. 6 lab. Prereq., 303 or with 302.

314. HEAT TRANSFER

(3) Hicks

Basic concepts of conduction, convection, and radiation; steady and unsteady states, film coefficients, and dimensional analysis. (2nd sem., yearly.)

323. THERMODYNAMIC ANALYSIS

(3) Hicks

An analytical study of gas and vapor power cycles, with and without reheat or regeneration. Discussion of effectiveness and availability. Fluid flow in rotating machines. (1st sem., yearly.)

324. GAS DYNAMICS

(3) Beale

One dimensional flow of ideal gases, Isentropic flow, shocks, heat transfer and friction. Application to propulsion systems.

370. INDUSTRIAL PLANT DESIGN

(3) Ralph Smith

Semester report covering complete design of an industrial plant for manufacturing a specific product. Includes market survey, manufacturing planning, plant layout, organization and financial analysis. Prereq., Mgt. 321 and/or with 302.

384, 385. PROBLEMS IN THERMAL MACHINERY

(4, 4) Beale

Current problems in thermal energy conversion: internal combustion engines, refrigeration, thermo-electric devices, gas turbines, rockets. Emphasis on individual reading and research. Prereq., permission.

390. SPECIAL INVESTIGATIONS

(1 to 3) Staff

Prereq., permission.

392. ADVANCED MACHINE DESIGN

(3) Black

Advanced problems in the design and analysis of machine members including consideration of stress propagation; stress analysis; fatigue and creep; residual stresses, Castiglano's theorem; and graphical analysis. Prereq., 303, permission.

393. LUBRICATION AND FRICTION

(3) Black

Derivation of Reynold's equation and its application to bearings and gear teeth; load capacity and thermal equilibrium. Boundary lubrication, lubricant composition, surface finish, bearing materials and bearing performances. Prereq., permission. (1st sem., yearly.)

394. MECHANICAL VIBRATIONS

(3) Adams

The characteristic phenomena of mechanical vibrations encountered in machines and structures, and their quantitative investigation. Simple-harmonic motion; principal and normal modes of vibration; free and forced vibration; damping effects; critical speeds; balancing; electro-mechanical analogy; principles of transmission and isolation of vibration; systems of several degrees of freedom; self-excited vibration; instrumentation. 2 lec., 2 lab.

395. ADVANCED THERMODYNAMICS

(3) Beale

Thermodynamic properties and principles as explained by the nature of atoms and molecules, statistical mechanics and quantum theory. Equilibrium, free energy and irreversible processes and their application to engineering. Prereq., permission.

481. RESEARCH IN MECHANICAL ENGINEERING

(1 to 4) Staff

Prereq., permission.

495. THESIS

(1 to 6) Staff

Prereq., permission.

ENGLISH

Professors Kendall, King, Stone, Summers,
E. Thompson

Associate Professors Culbert, Kirchner,

Swardson, Wells, Whan (chairman)

Assistant Professors Butterworth, Fieler, Harsh,

Holmes, Jones, Marks, McDonnell,

Morris, Purdum, Roe, Shipley

Lecturer Hemley

For admission to graduate work in English the applicant should present at least 18 hours of work in literature and submit evidence of having completed 2 years of college level language study. Applications for admission to graduate work in English will be accepted for review from those who have had extensive training in related fields. The language requirement may be met by examination.

The English Department graduate program is divided into three phases: the master's, the doctoral applicancy, and the doctoral candidacy. The student desiring the master's as a terminal degree will follow the same master's program as the doctoral applicant except that he will be required to take only the first part of the three-part comprehensives. Those who enter the doctoral program with a master's degree will take those sections of the three-part comprehensives which a review of their past study seems to require.

MASTER'S PROGRAM: In addition to the regular master's program stressing the historical-critical study of English and American literature, the department offers the master's degree in Creative Writing and in the Interneship Program. Plans for a Master of Arts in Teaching are now being developed and will be announced later.

Creative Writing Program: This program differs from the traditional master's in that the student may (a) substitute two creative writing seminars for six hours of literature courses and (b) instead of writing a thesis or completing the six-hour proseminar he may submit a substantial body of fiction, poetry, or drama for evaluation by the Creative Writing Director.

Interneship Program: Designed to prepare the master's student for teaching at the junior college level, the Interneship Program differs from the regular program in that the student (a) will take a one-hour course in the teaching of English and (b) will write a thesis concerning the problems of teaching composition or prose style.

Historical-Critical (i.e., Regular) Program: The normal program of study will include English 391-392 (one hour each), 450-451 Proseminar (3 hours each) and 24 hours of course work distributed according to the requirements of each student. Those who wish to write a thesis will take 27 hours of classwork plus thesis.

During the semester in which the student expects to finish his master's degree he will take the examination described under #1 below. Those wishing to go into doctoral work will take the complete three-part examination listed below:

1. Critical and historical sensibility (3 hours) (essays designed to demonstrate the student's ability to criticize a work of art and to recognize and understand various movements and styles)
2. Knowledge of literary data (2 hours)
(biographical, historical, bibliographical, and critical data)
3. Oral review (one hour) (summary-review of written examination)

Those students who wish to advance into the applicancy phase of the doctoral program must pass each of these examinations.

Transfer students with a master's degree may be required to take certain sections of this examination, usually #2 and #3.

DOCTORAL APPLICANCY: After the completion of 32 hours, after turning in his proseminal paper or thesis, and after having passed the three-part comprehensive examination, the student may advance to the stage of "doctoral applicant." He will remain an applicant until he has fulfilled the following requirements. He must complete:

1. his foreign language requirement as described by the Graduate College
2. 6 hours in the English Language (usually 405, Introduction to Old English, and 402, English Language I)
3. 9 hours of seminar training beyond the master's
4. the Stylistics Seminar or equivalent
5. the minor: Here the applicant may choose to follow a strong minor (9 hours) in another department and make appropriate adjustments in his work in English, or he may elect to submit a minor in Old English language and poetry (i.e., 406, Old English Poetry and 408, English Language II in addition to #2 above), or he may choose to minor in a period or area of the department different from his major area
6. a 4 hour examination in his area of concentration
7. an acceptable prospectus for his dissertation

DOCTORAL CANDIDACY: In this final phase of his work, the candidate will complete his dissertation. The committee recommends that the dissertation be kept within an 150 page limit whenever possible.

In lieu of the traditional oral examination the candidate will deliver a 60 minute public lecture on some aspect of his dissertation and will lead a short discussion upon his work.

303. MEDIEVAL ENGLISH LITERATURE (3) Culbert
Langland, Malory, the *Gawain* poet, and others (excluding Chaucer); relevant Continental literature. (1st sem., 1964-65.)
311. HISTORY OF THE ENGLISH LANGUAGE (3) Harsh
Growth of the language; vocabulary and grammar of the various periods; selections from Early English. (1st sem., yearly.)
312. CHAUCER (3) Culbert
Early works: *The Canterbury Tales*; *Troilus and Criseyde*. (2nd sem., yearly.)
314. STRUCTURE OF AMERICAN ENGLISH (3) Roe
An introductory course in the sound structure and grammatical structure of American English. (2nd sem., yearly.)
321. SIXTEENTH-CENTURY LITERATURE (3) Fieger
The English Renaissance and Humanism. (1st sem., 1965-66.)
322. ELIZABETHAN DRAMA (3) Kendall
The English drama from 1550 to 1642; predecessors, contemporaries, and immediate followers of Shakespeare. (1st sem., yearly.)
331. SEVENTEENTH-CENTURY LITERATURE (3) Whan
Donne, Bacon, Herrick, Browne, and others. (1st sem., yearly.)
332. MILTON (3) Swardson
Prose, minor poetry, *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*. (2nd sem., yearly.)
333. RESTORATION (3) Purdum
A study of typical works and main figures, with emphasis on Dryden. (2nd sem., 1965-66.)
341. EIGHTEENTH CENTURY LITERATURE (3) Jones
Pope, Swift, Gay, Defoe, Addison, Steele; the novel; the drama. (1st sem., yearly.)
342. EIGHTEENTH CENTURY LITERATURE (3) Jones
Boswell, Johnson, Goldsmith, Sheridan, Gray, Cowper, and others. (2nd sem., yearly.)
344. EIGHTEENTH CENTURY NOVEL (3) Shipley
Background and predecessors; Defoe, Richardson, Fielding, Smollett, Sterne, and others; the Gothic novel. (2nd sem., 1964-65.)
345. NINETEENTH CENTURY ENGLISH NOVEL (3) Morris
Historical survey; critical analysis of novels by Scott, Austen, Thackeray, Dickens, Trollope, the Brontes, Eliot, Meredith, Hardy, Conrad, and others. (1st sem., yearly.)
351. PROSE AND POETRY OF THE ROMANTIC PERIOD (3) King
The philosophical background; Wordsworth, Coleridge, Byron, Shelley, Keats. (1st sem., yearly.)

352. VICTORIAN POETRY AND PROSE (3) King
Tennyson, Browning, Arnold, Carlyle, Newman, Ruskin and others.
(2nd sem., yearly.)
356. AMERICAN LITERATURE TO 1865 (3) Kirchner
Puritanism, romanticism and transcendentalism. (1st sem., yearly.)
360. AMERICAN LITERATURE (1865-1900) (3) Holmes
The rise of realism and naturalism. (2nd sem., yearly.)
361. TWENTIETH CENTURY FICTION (3) Staff
Joyce, Faulkner, Lawrence, Hemingway, and others. (2nd sem., yearly.)
362. TWENTIETH CENTURY DRAMA (3) E. Thompson
Shaw, O'Neill, Eliot, and others. (1st sem., yearly.)
368. TWENTIETH CENTURY POETRY (3) Summers
Eliot, Auden, Frost, Thomas, and others. (1st sem., yearly.)
- 369, 370. COLLOQUIUM (3, 3) Staff
Specific interdisciplinary problems to be assigned each semester.
(Each sem.)
371. HISTORY OF LITERARY CRITICISM (3) E. Thompson
Aristotle to the present. (2nd sem., yearly.)
385. ORIENTATION IN TEACHING COLLEGE ENGLISH (1) Morris
Supervised introduction to teaching freshman composition and sophomore literature. (Given upon sufficient demand.)
390. STUDIES IN ENGLISH (1 to 3) Staff
Directed individual reading and research. Maximum credit, 6 hrs.
Prereq., permission of the dept. chairman. (Each sem.)
- 391-392. MASTERS SEMINAR (1-1) E. Thompson
Problems of research and criticism. Required of candidates for the M.A. in English. (Yearly.)
- 393-394. CREATIVE WRITING SEMINAR (3-3) Summers
Criticism of manuscripts and discussion of problems of form. Prereq., 6 hrs. of creative writing, permission of the instructor. Admission only in the first semester, except for unusual reasons. (Yearly.)
402. ENGLISH LANGUAGE I (3) Roe
A historical survey of the sounds, inflections, syntax and vocabulary of Old and Middle English, with particular emphasis upon the language of Chaucer. Prereq., 405. (2nd sem., yearly.)
403. ENGLISH LANGUAGE II (3) Roe
A historical survey of the sounds, inflections, syntax, and vocabulary of English from 1500 to the present, with particular emphasis upon the language of Shakespeare. Special development of the English language in the United States. Prereq., 402 or equivalent. (1st sem., yearly.)

405. INTRODUCTION TO OLD ENGLISH (3) Harsh
Studies in the language structure. Translation of selected prose.
(1st sem., yearly.)
406. OLD ENGLISH POETRY (3) Harsh
Translation and criticism of Old English verse. Prereq., 405. (2nd sem., yearly.)
412. CHAUCER (3) Culbert
Intensive study of Chaucer and his times. Problems in Chaucerian scholarship. (1st sem., 1965-66.)
424. SHAKESPEARE (3) McDonnell
Intensive study in specific critical and historical problems. (2nd sem., yearly.)
432. MILTON (3) Swardson
Critical and historical studies in Milton. (1st sem., 1964-65.)
- 450-451. PROSEMINAR (3-3) Staff
The proseminar is a two semester study, research, and writing program; the first semester will consist of a comprehensive reading into the subject matter area of the proseminal and investigations into the nature of literary problems relevant to this area and the selection of those problems appropriate to graduate writing. The second semester of the proseminal will be largely concerned with the writing of papers comparable in scope to the master's thesis or scholarly papers. (Sections as required, each sem.)
457. AMERICAN MASTERS I (3) Stone
Studies in Poe, Melville, and others. (1st sem., 1965-66.)
458. AMERICAN MASTERS II (3) Stone
Studies in James, Hemingway, or Faulkner. (1st sem., 1964-65.)
- 461-462. TWENTIETH CENTURY STUDIES (3-3) Wells, staff
Form, theme, and movement in twentieth century English and American literature. (1st sem., yearly.)
470. SEMINAR IN LITERARY PROBLEMS (3) Staff
Intensive study of an author, period, form, or movement. Maximum hours to be accumulated in 470 to be determined by advisor. (Each sem.)
473. STYLISTICS (3) Summers
Problems in the description and analysis of prose style. Prosodic theory. Literature and its writers. (2nd sem., yearly.)
475. THEORY OF LITERATURE (3) E. Thompson
Investigations into the nature of literature and the problems of practical literary criticism. (1st sem., yearly.)
- 481-482. PROBLEMS IN RESEARCH (3-3) Kendall
Theory and practice of literary and historical research. (2nd sem., yearly.)
495. THESIS OR DISSERTATION (As recommended by dept.) Staff
Prereq., permission.

FINANCE (Minor only)

Associate Professors, Blythe,
Fichthorn (chairman)
Assistant Professor McClary

To begin a minor in finance for degrees other than the Master of Business Administration, only the completion of basic courses satisfactory to the department is necessary.

305. INVESTMENT PRINCIPLES

(3) Fichthorn

Information for individual investors which can be used in the management of personal investment problems. Among the topics to be considered are investment risks and how they can be handled, yields, analysis of financial statements, and securities markets and their behavior.

306. SECURITY ANALYSIS

(3) Fichthorn

Problems of selecting securities for various investment purposes. Industry structure, volume-price-cost relationships, management, financial position, terms of the security contract, and market price behavior are studied to determine the attractiveness of a security. Portfolio construction is considered. Prereq., 305.

315. PROPERTY AND CASUALTY INSURANCE

(3) Staff

Analysis of the principal types of property and casualty insurance policies with respect to protection afforded the policyholder, his obligations, and cost of protection. Policies studied include fire and extended coverage, allied lines, business interruption, inland marine, automobile, general liability, theft, and bonds. The subjects of risk, insurance law, and multiple-peril policies are also covered.

316. LIFE INSURANCE

(2 or 3 as scheduled) Staff

The fundamental economics of life insurance. The principles and practices of life insurance, including types of contracts, group and industrial insurance, and annuities.

343. MONEY AND CAPITAL MARKETS

(3) Blythe

Study of the flow of funds, interest-price movements, and the institutions of the money and capital markets, including trading in federal funds, open-market paper, mortgage loan market, corporate securities markets, and the markets for government securities and municipal obligations.

351. MONETARY THEORY

(3) Blythe

A study of the theories advanced to explain the relationship between money and its value, the relationship between money and the level of economic activity, allocations of funds among alternate uses, and interest and interest rates.

352. INTERNATIONAL FINANCE

(3) Staff

An analysis of the problems in international finance; structure and development of the foreign exchange market. Foreign central banking and current developments in international financial cooperation.

356. PROBLEMS IN CORPORATION FINANCE

(3) Staff

This course is developed through the use of the cases which deal with short-term financing, long-term financing, reserve and dividend policies, expansion and combination, refunding, recapitalization, and reorganization. Not open to M.B.A. and M.S. (Acct.) degree students. Open to other graduate students by permission only.

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|---|----------------|
| 381. RESEARCH IN FINANCE Prereq., permission. | (1 to 8) Staff |
| 391. SEMINAR IN FINANCE Maximum credit in course, 10 hrs. Prereq., permission. | (2 to 4) Staff |
| 401-402. FINANCIAL MANAGEMENT The finance function of business as viewed by the executive responsible for procuring and utilizing funds. Short-term financing is covered in 401; long-term financing is covered in 402. Case method. | (3-3) Blythe |
| 495. THESIS Prereq., permission. | (1 to 6) Staff |

ADDITIONAL COURSE: EC. 315, PUBLIC FINANCE.

FINE ARTS

Professors Ahrendt, Brandes, Kantner, Leach,
Seigfred, Staats, Taylor, Walker
Associate Professors Jennings, Lane, Trisolini
(chairman), Watkins, White
Assistant Professors Conover, Hall Kortlander,
Olpp, Suess

THE DOCTOR OF PHILOSOPHY DEGREE IN FINE ARTS

The doctoral program in Fine Arts stresses the inter-relationship of major art forms through a sequence of comparative studies which points toward a synthesis of knowledge and understanding in the Fine Arts. Graduate course offerings are organized into four major chronological areas; viz., the Renaissance, the Baroque, the Nineteenth Century, and the Twentieth Century. Areas of study outside Western culture are offered within the designations F.A. 309, 475, 371, 390, and 381. In addition the College of Fine Arts sponsors special summer sessions in the history and theory of the arts in such fields as: The art of the Orient, Pre-Columbian arts, African arts, the arts of Colonial America and the arts of Russia and the Soviet Union.

Applications for admission to graduate study at the doctoral level in Fine Arts will be considered individually by a departmental committee established for this purpose. The minimum course requirements for the student in the Ph.D. program in Fine Arts shall consist of at least 60 semester hours of work beyond the master's degree. To insure the breadth of background needed for entrance into the program, each student is expected to meet certain basic requirements. More specifically, but without intent to be precisely prescriptive, the student entering the program should have completed a master's degree which has had its major emphasis in practical applications in the Fine Arts area. The following areas should be covered in the total program of the student either by substantial and approved courses at the undergraduate level or in graduate courses: (1) six hours or two courses or its equivalent in the history of painting and sculpture or the history of architecture; (2) six hours or two courses or its equivalent in the history of music; (3) six hours or two courses or its equivalent in the history of visual theatre or the history of oratory.

Students trained at the level of the master's degree in the studio or practical aspects of one of the particular arts will utilize this training as a minor area of study in the doctoral program. The major area will be composed of history and theory of the arts encompassing the following: (1) at least one course in each of the five core areas of art, music,

theatre, public address and architecture; (2) at least two core courses each semester; (3) all core courses in at least two areas; (4) at least 18 hours in major area exclusive of the applied minor and the dissertation; (5) an applied minor of at least 12 hours; (6) a dissertation involving work in at least two areas.

309. CLASSICAL RHETORICAL THEORY (3) Staats, Watkins

The principles of rhetoric based upon the theories of Aristotle, Cicero, Quintilian, and Adams. Speeches of eminent orators are analyzed.

321. HISTORY OF DRAMATIC CRITICISM (3) Conover, Walker

The principles of dramatic criticism from Aristotle to the present.

322. DRAMATIC COMPOSITION (3) Walker

Theory of playwriting. Practical experience in the writing and rewriting of plays. Scripts of sufficient merit are produced under the writer's supervision by the University Playshop.

324. CONTEMPORARY THEATRE (3) Lane

Trends in twentieth century theatre; the spread of "the new stagecraft" and the growth of realism; developments in non-realistic drama and theatre.

337. THE LITERATURE OF VOCAL MUSIC (2) Suess

Representative literature from the fields of oratorio, choral music, and the art song.

338. THE LITERATURE OF ORCHESTRAL MUSIC (2) Suess

Orchestral literature from the classic through the contemporary.

339. THE EVOLUTION OF THE OPERA (2) Suess

340. THE LITERATURE OF PIANO MUSIC (2) Jennings

The development of the instrument, the primary forms adapted to it, and the representative composers.

344. CONTEMPORARY MUSIC (3) Suess

Music as an artistic expression of our time. A study of the various styles since c. 1900.

353. MASTERS OF THE THEATRE (3) Lane

Techniques for the production of historical plays. Preparation of the director's manuscript and actual supervision of production. Open only to majors in dramatic art. Prereq., 351, permission.

359. ACTING FOR LYRIC DRAMA (3) Conover

Advanced techniques of acting in relation to the form and content of lyric drama. Laboratory experience in the creation of roles. Special emphasis on the Elizabethan, with some attention to Greek and twentieth century authors. 1 lec., 4 lab. Prereq., 304.

371. LATIN AMERICAN ART (3) Olpp

Architecture, sculpture, and painting of the Hispanic Southwest, Mexico, Central America, the Caribbean Area, and South America from Pre-Columbian times to the present.

375. ARCHITECTURE IN THE UNITED STATES (3) Everett

Development of architecture from colonial times. 2 lec.

377. NINETEENTH AND TWENTIETH CENTURY ARCHITECTURE (2) Taylor

An extensive study of the origins and rise of contemporary architecture; the education, theories, and works of prominent architects. Lectures, assigned presentations, and seminar discussions. Prereq., 375, permission.

378. PHILOSOPHY OF ARCHITECTURE (2) Taylor

Theories of architecture advanced or exemplified by philosophers, aestheticians, and architects. Lectures, assigned presentations, and seminar discussions. Prereq., 377, permission.

381. RESEARCH (1 to 5) Staff

Individual problems of theory and practice involving research techniques. Prereq., permission.

382. CUBISM, EXPRESSIONISM, AND LATER DEVELOPMENT (3) Kortlander, Leach

Appearance and development of basic artistic expressions from the beginning of the twentieth century to the present.

385. CONTEMPORARY PUBLIC ADDRESS (3) Brandes

Prereq., permission.

390. SEMINAR IN ART HISTORY (2 or 3) Staff

Individual and group problems on periods and movements. Detailed reports. Recommended for students in the process of writing a thesis. Prereq., permission.

403. THE RENAISSANCE (3) Kortlander, Leach

A comparative study of the developments in Italy prior to Raphael's death and in the north of Europe to the death of Hans Holbein the younger.

404. MANNERISM AND THE BAROQUE (3) Kortlander, Leach

Origin and the development in Italy subsequent to 1520 with attention to variations in the north of Europe and in England.

422. RENAISSANCE THEATRE (3) Conover

The development of the theatre from the rise of humanism to the establishment of the Baroque style.

423. BAROQUE THEATRE (3) Walker

Detailed study of the Baroque Period with special attention to the theatre arts as expressions of the aesthetic, social and political philosophies of the times.

424. NINETEENTH CENTURY THEATRE (3) Walker

A study of the major developments of the nineteenth century European theatre in relation to the aesthetic and social forces of the times.

441. MUSIC OF THE MEDIEVAL AND RENAISSANCE PERIODS (3) Suess

Music as an artistic expression of the Medieval and Renaissance periods; a history of the evolution of musical styles up to c. 1600.

442. MUSIC OF THE BAROQUE PERIOD (3) Suess

Music as an artistic expression of the Baroque period; a history of the evolution of musical styles c. 1600-c. 1750.

443. MUSIC OF THE CLASSIC AND ROMANTIC PERIODS (3) Suess

Music as an expression of the Classic and Romantic periods; a history of the evolution of musical styles c. 1750-c. 1900.

471. AMERICAN PUBLIC ADDRESS (3) Staats
The history of public address in America from colonial times to the present.
472. BRITISH AND FRENCH PUBLIC ADDRESS (3) Watkins
A study of the pulpit and political orators of the French revolutionary period and the British parliamentary orators of the eighteenth and early nineteenth centuries. Prereq., 309 or equivalent.
473. RENAISSANCE RHETORICAL THEORY (3) Watkins
The major rhetorical theories from Cox in 1530 to Whately in 1828 are covered, with the emphasis placed on the Renaissance linking of ancient to modern rhetoric.
474. ARCHITECTURE TO 1600 (3) Olpp
The development of the classic style from Greece to Rome and its survival through the Medieval period and its revival in the Renaissance.
475. GREEK, ROMAN, AND PATRISTIC PUBLIC ADDRESS (3) Staats
Historical and cultural aspects of public address in the Greek, Roman and Patristic periods. Outstanding speakers and speeches of each period analyzed in terms of the issues of the time. Prereq., 309.
477. THE BAROQUE SPIRIT IN ARCHITECTURE (3) White
Social, artistic and religious influence on architecture of the Baroque period, with emphasis on English influence in America.
481. IMPRESSIONISM AND POST-IMPRESSIONISM (3) Olpp
Emphasis on the developments in French Art between the 1848 Revolution and 1900. The problems of the Academy, Romanticism, Classicism, Realism, Impressionism, Post-Impressionism, Cezanne, and the Symbolists.
491. SEMINAR IN FINE ARTS (1) Trisolini, staff
Maximum credit in course, 6 hrs.
495. THESIS OR DISSERTATION (As recommended by dept.) Staff
Prereq., permission.

FRENCH—See Modern Languages

GEOGRAPHY AND GEOLOGY Professor Sturgeon (chairman) Assistant Professors Baker, Fisher, Korsok, Phelps, Winsberg Instructor Wilhelm

Graduate students who wish to major in geology must have completed three hours in each of the following courses: historical geology, mineralogy, petrology, and structural geology, and in addition must have earned sufficient hours of the following to complete a minimum of 24 hours in geology: economic geology, glacial geology, geomorphology, paleontology, sedimentation, stratigraphy, and field geology. At least six hours each of chemistry, physics, and mathematics through trigonometry are also required. Students unable to meet the above requirements will be asked to make up deficiencies without graduate credit. It is recommended, where appropriate, that the graduate student complete differential calculus and quantitative chemistry. Credit in a recognized field camp is required.

Graduate students who wish to minor in geography or geology should have a minimum of 12 hours in geography or geology, respectively, in courses approved by the department. A major program in geography is not offered.

GEOGRAPHY (Minor only)

301. GEOGRAPHY OF THE SOVIET UNION (3) Korsok
Physical, cultural, and economic geography of the Soviet Union.
(1st sem., 1964-65.)
305. GEOGRAPHY OF LATIN AMERICA (3) Winsberg
Similar treatment as in 301. (1st sem., 1964-65.)
308. GEOGRAPHY OF EUROPE (3) Korsok
Similar treatment as in 301. (2nd sem., 1965-66.)
312. GEOGRAPHY OF SOUTHERN ASIA AND ISLANDS (3) Korsok
Similar treatment as in 301. (2nd sem., 1965-66.)
322. GEOGRAPHY OF AFRICA (3) Wilhelm
Similar treatment as in 301. (2nd sem., 1965-66.)
360. POLITICAL GEOGRAPHY (3) Korsok
Geographic basis of national strength or weakness. Physical and cultural influence upon historical development is emphasized. (2nd sem., yearly.)
370. URBAN GEOGRAPHY (3) Korsok
Study of geographic factors in urban areas stressing locational and economic factors. Prereq., 6 hrs. (1st sem., 1964-65.)
382. GEOGRAPHICAL STUDIES (1 to 4 a semester in any one of the following) Staff
Supervised studies in fundamentals of geographic research. Maximum credit in any one area, 8 hrs. Prereq., permission. (Each sem.)
 a. Cartography. Korsok
 b. Conservation of Natural Resources. Staff
 c. Economic Geography. Korsok
 d. Meteorology and Climatology. Wilhelm
 e. Physiography (see Geol. 383a). Staff
 f. Political Geography. Korsok
 g. Regional Geography. Staff
 h. Urban Geography. Korsok
- 391, 392. SEMINAR IN GEOGRAPHY (1, 1) Staff
Maximum credit in course, 2 hrs. (Yearly.)

GEOLOGY

313. PRINCIPLES OF SEDIMENTATION (3) Fisher
Processes and principles involved in study of sediments, 2 lec., 2 lab., and field trips. (1st sem., yearly.)
314. PRINCIPLES OF STRATIGRAPHY (3) Sturgeon
Materials and principles involved in the study of stratigraphy. 2 lec., 2 lab., and field trips. Prereq., 313. (2nd sem., yearly.)

- 315. GEOLOGY OF OHIO** (2) Sturgeon
Introduction to its physiography, stratigraphy, and economic geology. 2 lec., and field trips. (2nd sem., 1965-66.)
- 333. OPTICAL CRYSTALLOGRAPHY** (2) Fisher
Study of optical behavior of minerals by use of the petrographic microscope. 1 lec., 1 lab. (1st sem., 1964-65.)
- 342. PETROGRAPHIC METHODS** (3) Fisher
Introduction to the identification of rocks by thin-sections and the petrographic microscope. 2 lec., 1 lab. Prereq., 333. (2nd sem., 1964-65.)
- 353. MICROPALAEONTOLOGY** (3) Sturgeon
Introduction to microscopic animal fossils. 2 lec., 2 lab., and field trips. (1st sem., 1965-66.)
- 362. STRUCTURAL GEOLOGY** (3) Phelps
Study and interpretation of rock structures caused by earth movements. 2 lec., 2 lab., and field trips. (2nd sem., yearly.)
- 371. ECONOMIC GEOLOGY — Metals** (3) Phelps
Principles of metallic mineral deposition and a survey of the ore deposits of the world. 2 lec., 2 lab. (1st sem., 1964-65.)
- 372. ECONOMIC GEOLOGY — Non-metals** (3) Fisher
Principles of non-metallic mineral deposition and a survey of non-metallic and mineral fuel deposits of the world. 2 lec., 2 lab., and field trips. (2nd sem., 1964-65.)
- 374. PRINCIPLES OF PETROLEUM GEOLOGY** (3) Fisher
Principles of the origin, migration, and accumulation of petroleum, and a survey of the major petroleum basins of the world. Prereq., 362. (2nd sem., 1965-66.)
- 376. GROUND WATER GEOLOGY** (3) Baker
Study of the principles governing the occurrence, movement, and recovery of ground water. Prereq., 314. (1st sem., 1965-66.)
- 383. GEOLOGIC STUDIES** (1 to 4 a semester in any of the following) Staff
Supervised studies in fundamentals of geological research. Maximum credit in any one area, 8 hrs. Prereq., permission.
- Glacial Geology and Physiography. Baker
 - Ground Water Geology. Baker
 - Mineralogy, Petrology, or Economic Geology. Fisher, Phelps
 - Paleontology. Sturgeon
 - Sedimentation and Stratigraphy. Fisher, Phelps, Sturgeon
 - Structural Geology. Baker, Phelps
 - Tectonics. Baker, Fisher, Phelps
- 385, 386. GEOLOGIC FIELD RECONNAISSANCE** (2 or 3, 2 or 3) Staff
Vacation period geologic field trips to selected areas in North America with pertinent conferences, readings, and accepted reports. Prereq., permission. Maximum credit in course, 6 hrs.
- 391, 392. SEMINAR IN GEOLOGY** (1,1) Staff
Attendance required of all graduate students. Maximum credit in course, 3 hrs. (Yearly.)

415. REGIONAL STRATIGRAPHY—EASTERN NORTH AMERICA (3) Sturgeon
 Detailed stratigraphy east of the Great Plains. 2 lec., 2 lab. Prereq., 314. (1st sem., 1964-65.)
416. REGIONAL STRATIGRAPHY—WESTERN NORTH AMERICA (3) Phelps
 Similar to 415 but covering the Great Plains and Cordilleran regions. 2 lec., 2 lab. Prereq., 314. (2nd sem., 1964-65.)
428. PHYSIOGRAPHY OF NORTH AMERICA (3) Baker
 Study of surface features and related significant geologic factors of North America. Prereq. 314, 362. (2nd sem., 1965-66.)
463. GEOTECTONICS (3) Staff
 Study of mountain building, continental drift, island arcs, and comparison of rock structures in different mountain types. Prereq., 314, 362. (1st sem., 1965-66.)
493. RESEARCH IN GEOLOGY (1 to 4) Staff
 Maximum credit in course, 6 hrs. Prereq., permission. (Yearly.)
495. THESIS (1 to 6) Staff
 Maximum credit in course, 6 hrs. Prereq., permission.

GERMAN—See Modern Languages

GOVERNMENT

Associate Professors Collins,
 Elsbree (chairman), Fairfield, Gusteson
 Assistant Professors Bald, Tucker
 Instructor Prisley

To begin graduate work with government as a major, a minimum of 18 hours in government, or its equivalent, is required.

To begin a graduate minor in government, a minimum of six hours in government, or its equivalent, is required.

- 301, 302. AMERICAN CONSTITUTIONAL LAW (2, 2) Gusteson
 Principles underlying American constitutional government. Consideration of leading cases, with special reference to interpretation of the Constitution of the United States. (Yearly.)
305. AMERICAN POLITICAL PARTIES (3) Gusteson
 The origin, growth, organization, and methods of parties; the role of parties in a democracy; the influence of pressure groups. (Yearly.)
308. LEGISLATURES AND LEGISLATIVE PROCESSES (3) Gusteson
 Major problems of representative government with respect to legislative assemblies. Analysis of structure, organization, and procedures. Interrelationship of legislatures with other forces in society. (Yearly.)
309. LAW ENFORCEMENT (3) Gusteson
 Survey and analysis of the problems of the American policing, prosecutorial, judicial, and correctional systems. Emphasis on both policy making and administration. (Yearly.)

323. INTERNATIONAL LAW AND ORGANIZATION (3) Bold
Analysis of the legal principles and practices governing the relations between states; study of the development, structure, and functions of international organizations, with particular emphasis on the United Nations. (2nd sem., yearly.)
331. FAR EASTERN GOVERNMENTS AND POLITICS (3) Elsbree
A study of the governmental organization, political parties, and foreign policies of China and Japan. Political developments since 1945 will be emphasized. (Yearly.)
341. AMERICAN FOREIGN POLICY (3) Collins
A consideration of the problems involved in the formulation and execution of foreign policy. Particular emphasis is given to the current problems of American policy. (2nd sem., yearly.)
343. AMERICAN POLITICAL THOUGHT (3) Fairfield
The origin and development of American political ideas from colonial times to the present, focusing upon concepts of democracy, liberty, and property. (Yearly.)
344. RECENT POLITICAL THOUGHT (3) Elsbree
Political ideas of the nineteenth and twentieth centuries with the emphasis on Europe; liberalism, socialism, communism, and fascism. (Yearly.)
348. PUBLIC ADMINISTRATION (3) Collins
The theory and practice of administrative organization, and control of administrative action, with emphasis on financial and public personnel administration. Basic course for preparation for civil service examinations. (Yearly.)
349. ADMINISTRATIVE LAW (3) Collins
Organization, functions, procedures, and administrative problems of selected national regulatory agencies; principles affecting administrative discretion; administrative power over private rights; enforcement and judicial control of administrative action. (Yearly.)
370. STUDIES IN GOVERNMENT (1 to 3) Staff
Intensive study of special topics in the field of government and political science. Areas of study include American government and politics, comparative government, international affairs, political parties, political theory, public administration, public law. Maximum credit in course, 12 hrs. Prereq., permission. (Each sem.)
391. SEMINAR IN GOVERNMENT (1 to 3) Staff
Maximum credit in course, 6 hrs.
398. PROBLEMS IN GOVERNMENT (1 to 3) Staff
Research or directed reading based upon the student's special interest. Maximum credit in course, 6 hrs. Prereq., permission.
401. RESEARCH IN GOVERNMENT (1 to 3) Staff
Maximum credit in course, 6 hrs. Prereq., permission.
495. THESIS (1 to 6) Staff
Prereq., permission.

GREEK—See Classical Languages**HISTORY**

Professors Cady, Gustavson (chairman), Stevens
Associate Professors Daniel, Gilmore, Lobdell, Mayes
Assistant Professors Hehn, McCormick, Steiner
Instructor Doxsee

To undertake graduate work with history as a major, a minimum of 18 hours in history is required, including the basic survey courses in European and American history, or their equivalent, and at least two courses in the 300-399 group.

To begin a graduate minor in history, a minimum of six hours in history, or approved equivalents, is required.

Graduate students majoring in history are required to take Hist. 395 and 398.

301. COLONIAL AMERICA

(3) Steiner

The discovery and colonization of America, relation of the colonies to England, and the daily life of colonial Americans. (1st sem., yearly.)

302. THE REVOLUTIONARY ERA

(3) Stevens

An intensive study of the causes of the Revolution, the struggle for independence, the movement for a new government, and the framing of the Constitution. (2nd sem., yearly.)

310. SECTIONAL CONTROVERSY, 1820-1850

(2) Stevens

Slavery and political controversy, rise of the common man, rural conditions, transportation, immigration, education, the factory system, reform agitation, territorial annexations, and growth of nationality. (1st sem., yearly.)

312. THE CIVIL WAR AND RECONSTRUCTION

(3) Stevens

The sections of the United States in 1850, forces leading to war, the great conflict; Reconstruction, its background and development; restoration of home rule in the South, general cultural and economic development. (2nd sem., yearly.)

315. FOUNDATIONS OF MODERN AMERICA, 1877-1901

(3) McCormick

An intensive examination of the origins of modern America, emphasizing internal industrialization and external expansion and their combined impact upon economic, social, and political life in American society. (2nd sem., yearly.)

316. HISTORY OF THE INDUSTRIAL REVOLUTION

IN THE UNITED STATES, 1850-1941 (3) Daniel

Origins of the factory system in America, the impact of the Civil War, rise of heavy industry, problems of financing and control, influence of the progressive era, resurgence of big business during wartime and the twenties, industrial problems of the depression period. (2nd sem., yearly.)

321. THE UNITED STATES IN RECENT TIMES, 1898-1928

(3) Lobdell

American imperialism, the Progressive Era, World War I, retreat from world responsibility, and the post-war prosperity period. (1st sem., yearly.)

322. THE UNITED STATES IN RECENT TIMES, SINCE 1928

(3) Lobdell

The great depression, the New Deal, abandonment of isolation, World War II, post-war crises and problems. (2nd sem., yearly.)

324. UNITED STATES FOREIGN RELATIONS SINCE 1865 (3) McCormick
A survey of American foreign relations since 1865, emphasizing American diplomacy as a composite reaction to external forces in Latin America, the Far East, and Europe, and to internal demands of American society. (1st sem., yearly.)
325. THE WESTWARD MOVEMENT (3) Daniel, Stevens
Expansion from the Atlantic to the Pacific. Explorations, Indian trade, land policies, pioneer life, territorial acquisitions and state making, trails and railroads to the Far West, rise of cowboy land, types of later frontiers, and influence of the West upon American ideals and institutions. (2nd sem., yearly.)
- 331, 332. SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES (3,3) Daniel
Role of minorities, class structure, and religion in forming American society; development of American painting, architecture, music, literature, education, and science as expressions of American culture. Prereq., 6 hrs. (Yearly.)
341. THE MIDDLE WEST (3) Stevens
Development of political, economic, and social institutions and attitudes characteristic of Ohio and the Middle West since 1787. Emphasis on twentieth century community relationships, problems, and forms of behavior. (1st sem., 1965-66.)
347. RECENT LATIN AMERICA (3) Gilmore
Social and political change reflecting the needs and rivalries of an emerging middle class, organized labor, the armed forces, economic associations, and other pressure groups. The role of new parties and ideologies in guiding and stimulating change in the Latin-American nations will be analyzed. (1st sem., yearly.)
348. PRO-SEMINAR IN CONTEMPORARY LATIN AMERICA (3) Gilmore
Directed reading and analysis of the current scene. (2nd sem., yearly.)
350. THE FAR EAST IN MODERN TIMES (3) Cady
Manchu China and Tokugawa Japan from the early nineteenth century; the opening of China; Meiji Restoration in Japan; failure of China to adjust to external pressures; Japan's emergence as a world power; Manchu collapse and abortive efforts to reconstitute the state; Japanese political developments to 1930; defeat of Japan's effort at hegemony over Eastern Asia; Communist triumph in China. (2nd sem., yearly.)
352. SOUTHEAST ASIA (3) Cady
Indianization of Southeast Asia, Hindu, Buddhist, Islamic; cultural centers of historic Southeast Asia; the impact of Western colonialism on the area; liquidation of colonial rule and problems faced by the new world of Southeast Asia. (1st sem., yearly.)
356. THE MIDDLE EAST IN MODERN TIMES (3) Doxsee
The decline of the Ottoman Empire during the course of the nineteenth century; the emergence and evolution of the successor states of the Middle East; contemporary economic, social, and political problems of the region. (1st sem., yearly.)

361. THE RENAISSANCE AND THE REFORMATION (3) Mayes

A study of Europe in transition from the fourteenth to the sixteenth centuries, with special emphasis on Italy. The course will examine the rise of the national states, the commercial revolution, humanism, art and architecture, the later medieval church, the rise of Protestantism, and the Catholic Reformation. (2nd sem., 1965-66.)

363. TUDOR AND STUART ENGLAND (3) Mayes

England in the sixteenth and seventeenth centuries; a study of Tudor absolutism, the English Reformation, the constitutional crises (parliament versus the Crown) of the Stuart period, the republican experiment under Cromwell, the beginnings of empire, and the major cultural and economic developments. (2nd sem., 1964-65.)

365. FRENCH REVOLUTION (3) Gustavson

An intensive study of such historical factors as causality, influence of ideology, institutional organization, and the role of the individual in a great social upheaval. Pro-Seminar. (2nd sem., 1964-65.)

366. FRANCE SINCE 1815 (3) Hehn

Socio-political, institutional and cultural evolution; the revolutionary and authoritarian traditions under monarchy and republic; the role of France as a great power. (2nd sem., yearly.)

370. EUROPE BETWEEN WORLD WARS (3) Gustavson

Fascism, communism, and the twenty-year armistice between 1919 and 1939. (1st sem., 1965-66.)

372. CONTEMPORARY EUROPE (3) Gustavson

Problems of peace and war in Europe since 1939. (2nd sem., 1965-66.)

375. HISTORY OF RUSSIA (3) Gustavson

A survey from the earliest times to 1914. The Russian background of communist ideas, organization, and practices is stressed. (1st sem., yearly.)

376. THE SOVIET UNION (3) Gustavson

A history of the U.S.S.R., with emphasis on internal affairs of the Communist regime. (2nd sem., yearly.)

378. THE HISTORY OF MODERN GERMANY (3) Gustavson

A survey of Germany and central Europe since the Age of Napoleon. (1st sem., 1964-65.)

379. THE BALKANS (3) Hehn

Brief historical background of the Balkan peoples; conflicting nationalisms and big power rivalries; Sovietization, Titoism, and 1956 Hungarian Revolution. (1st sem., yearly.)

387. AFRICA IN MODERN TIMES (3) Cady, Doxsee

African geography, resources, and peoples; European contacts prior to 1860; explorers and missionaries; partitioning to 1914; recent political and economic developments; problems of racial and cultural adjustment; prospects of emerging African states. (2nd sem., yearly.)

390. REPRESENTATIVE HISTORIANS AND THEIR WRITINGS (2 or 3 as scheduled) Staff

Typical historians from the time of Herodotus with readings from their masterpieces to illustrate schools of interpretation, philosophies of history, and the development of historical writing. (2nd sem., 1965-66.)

392. PROBLEMS IN HISTORY

(1 to 3) Staff

Intensive individual work either in research or in systematic reading along the lines of the student's special interest under the supervision of a member of the staff. Maximum credit in course, 6 hrs. (Each sem.)

395. HISTORIOGRAPHY AND METHODOLOGY

(4) Mayes, staff

An introduction to the technique of historical investigation with practice in historical criticism and writing. (1st sem., yearly.)

398. SEMINAR IN HISTORY

(1 to 3) Staff

Reports based upon original research with group discussion and criticism. Maximum credit in course, 6 hrs. (2nd sem., yearly.)

495. THESIS

(1 to 6) Staff

Prereq., permission.

HOME ECONOMICS

Professor V. M. Roberts (director)

Child Development and Family

Professor Womble

Life Education

Associate Professors Bane, Pearce, Sellers

Foods and Nutrition

Assistant Professors Cowan, Langford,

Home Economics

Lewis, Macauley, Nehls

Education

Instructors Kimball, Lockard

Housing and Home**Management****Food Service Management****Textiles and Clothing****Inter-Disciplinary Program**

A student desiring a master's degree with a major in home economics must have a minimum of 18 semester hours of undergraduate preparation in the field of home economics in which he wishes to specialize and/or in approved related fields. For a graduate program in Home Economics Education, the student is required to have a minimum of 24 hours distributed among at least three areas of home economics.

A student desiring a graduate minor in home economics must have a minimum of 12 semester hours of undergraduate preparation in the field of home economics in which he wishes to specialize and/or in approved related fields. Eight to twelve hours of work in one area of home economics and/or a related field constitute a minor. The student must meet the prerequisites for the courses chosen.

All graduate programs in home economics are planned by the student and his adviser, taking into consideration the undergraduate training and the professional goals of the student. Requirements vary, depending upon the type of program selected — (a) with thesis, (b) without thesis, or (c) inter-disciplinary program.

HOME ECONOMICS**360. WORKSHOPS IN HOME ECONOMICS**

(1 or 2)

Special workshops to aid the home economics teacher. The areas of study include:

- a. Home Economics Education
- b. Clothing and Textiles
- c. Foods and Nutrition
- d. Child Development
- e. Consumer Education
- f. Home Furnishings

- g. Home Management
- h. Household Equipment
- i. School Lunch Management
- j. Family Life Education

Maximum credit toward graduate degree, 6 hrs. Prereq., teaching experience or qualifications for certification to teach home economics. (Summer only.)

381. RESEARCH IN HOME ECONOMICS

(2 or 3) Staff

A project course in which the student carries on independent investigations under the guidance of the instructor. Maximum credit in course, 6 hrs. Prereq., permission.

390a, b, c, d, e, f. FIELD WORK IN HOME ECONOMICS

(2 to 4) Staff

- a. Home Economics Extension
- b. Home Service Work With Public Utilities
- c. Food Service Management
- d. Retail Merchandising
- e. Radio-Television
- f. Child and Family Development

Through cooperation with business organizations, department stores, radio-television stations, the Home Economics Extension Department of Ohio State University, and the Merrill-Palmer Institute, opportunities are given for on-the-job training and practical experience. The faculty adviser serves as coordinator of the work established with these outside agencies. Prereq., permission.

391. SEMINAR IN HOME ECONOMICS

(1 or 2) Staff

Prereq., approval by chairman of department in which work is performed.

495. THESIS

(1 to 6) Staff

Prereq., approval by chairman of department in which work is performed.

CHILD DEVELOPMENT AND FAMILY LIFE EDUCATION

Mr. Womble (chairman)

370. FAMILY LIFE EDUCATION

(3) Womble

An examination of attitudes, relationships, and practices within the family group as a means of gaining a deeper understanding of dynamics of family living in our changing society. A development of methods and techniques of presenting family living in the home economics curriculum.

375. READINGS IN INFANT AND CHILD DEVELOPMENT

(2 or 3) Pearce

An intensive study through library research of a phase of child and infant development. Weekly conferences. Maximum credit in course, 6 hrs. Prereq., permission.

376. READINGS IN FAMILY LIVING

(2 or 3) Womble

An intensive study through library research of problems in family living. Weekly conferences. Maximum credit in course, 6 hrs. Prereq., permission.

377. TECHNIQUES WITH YOUNG CHILDREN

(3) Pearce

Techniques of guidance of nursery school children, with emphasis on emotional and social development of the child and the effect of family attitudes on behavior. 2 lec., 3 hrs. at Nursery School.

378. ADMINISTRATION OF GROUP CARE OF YOUNG CHILDREN (3) Pearce
 The organization and administration of nursery school.
- 379a, b. GUIDANCE OF NURSERY SCHOOL CHILDREN (2 to 6) Lockard, Nehls, Pearce
 a. Teaching and Guidance in the Nursery School (4)
 b. Techniques in Child Feeding (2)
 Teaching and guidance in the nursery school with participation in all phases of the nursery school program. Prereq., permission.
477. SPECIAL STUDIES IN FAMILY RELATIONSHIPS (2 or 3) Womble
478. SPECIAL STUDIES IN INFANT AND CHILD DEVELOPMENT (2 or 3) Pearce

FOODS AND NUTRITION

Miss Lewis (chairman)

320. CREATIVE COOKERY AND MEAL MANAGEMENT (3 or 4) Roberts
 An advanced course emphasizing the creative, scientific, and artistic phases of food preparation and meal management. Prereq., permission. (Summer only.)
322. EXPERIMENTAL COOKERY (3) Lewis
 Group and individual experiments on selected problems of food preparation. 1 lec., 4 lab. Prereq., Organic Chemistry. (1st semester, 1964-65.)
325. COMPARATIVE STUDIES IN FOODS (3) Lewis, Macauley
 An advanced course in food preparation including comparative cookery, and home food preservation. Factors affecting palatability and retention of nutrients in foods will be considered. 1 lec., 4 lab.
326. ADVANCED NUTRITION (3) Kimball
 Principles of nutrition as applied to the feeding of individuals and families under varying conditions. 1 lec., 4 lab. (1st sem., 1965-66.)
328. RECENT DEVELOPMENTS IN FOODS AND NUTRITION (3) Kimball, Roberts
 Reports, discussions, and reviews of scientific literature. Some laboratory projects may be included. (Summer only.)
329. NUTRITION IN DISEASE (2) Kimball
 Application of principles of nutrition to the feeding of individuals and the use of diet in prevention and treatment of disease. Problems in planning and preparing therapeutic diets. 1 lec., 3 lab. Prereq., 326. (2nd sem., 1965-66.)
340. PROBLEMS IN FOODS AND NUTRITION (2 or 3) Kimball, Lewis, Macauley
 A comprehensive study of nutrition, experimental foods, food or nutrition analysis, or food service management. Maximum credit in course, 6 hrs. Prereq., permission.
433. SPECIAL PROBLEMS IN CHEMISTRY OF FOODS AND NUTRITION (2 or 3) Kimball, Lewis
 An intensive study of a phase of food chemistry or nutrition. Maximum credit in course, 6 hrs. Prereq., 322 or 326.

HOME ECONOMICS EDUCATION

Miss Sellers (chairman)

350. PROBLEMS IN TEACHING OF HOME ECONOMICS (1 to 3) Sellers
Opportunity for individual selection of problems. Maximum credit in course, 6 hrs. Prereq., permission.

367. VOCATIONAL HOME ECONOMICS (3) Sellers
History and philosophy of vocational homemaking education. Contemporary trends, methods, sources of materials, and evaluation. Observation arranged. Prereq., permission. (Summer only.)

368. DEMONSTRATION TECHNIQUES (2) Lewis, Roberts
Practical experience in the demonstration of foods, equipment, or clothing. Planned for those going into secondary education or consumer service positions. 4 lab.

369. HOME ECONOMICS IN ADULT EDUCATION (3) Sellers
Organization procedures, curriculum materials, and methods of conducting adult education groups in the field of education for family living.

450. SPECIAL PROBLEMS IN TEACHING OF HOME ECONOMICS (2 or 3) Sellers
Intensive study of some phase of home economics education. Maximum credit in course, 6 hrs. Prereq., teaching experience in home economics.

460. SUPERVISION IN HOME ECONOMICS (3) Sellers
Leadership functions, principles, and practices involved in effective supervision in the field of home economics. Designed for those interested in supervising student teachers or in-service programs at the local, state, or national level. Prereq., teaching experience in home economics.

461. HOME ECONOMICS IN HIGHER EDUCATION (3) Sellers
Basic philosophy and issues concerning the place of home economics in higher education today. General trends in curriculum offerings, teaching practices, evaluation, administration, and research. Designed for those interested in teaching home economics at the college level. Prereq., a minimum of 24 hours in home economics.

HOUSING AND HOME MANAGEMENT

Miss Langford (chairman)

330. WORKSHOP IN HOME FURNISHINGS (3) Langford
Laboratory problems in advanced techniques in home furnishings, including upholstering, slip-covering, refinishing furniture, and making draperies. 1 lec., 4 lab.

331. ADVANCED HOME FURNISHINGS (2) Langford
A study of the qualities and styles of furnishings. Problems on china, glass, silver, furniture, bedding, rugs, etc. 1 lec., 2 lab. Prereq., 330.

334. HOUSEHOLD EQUIPMENT (3) Macauley
A critical analysis of the use of home equipment to establish standards for effective use. 1 lec., 4 lab.

351. HOME MANAGEMENT (2) Staff
Economic use of time, energy, and money in the successful functioning of the home from the viewpoint of the satisfaction of members of the family.

353. HOME MANAGEMENT LABORATORY (3) Staff

Residence in the home management house for half a semester provides experience in the use of human and material resources of the family for the optimum development of its members. A charge is made to cover room and board. Prereq., 351 or with 351, permission.

452. SPECIAL PROBLEMS IN HOUSEHOLD EQUIPMENT AND/OR HOME MANAGEMENT (2 or 3) Macauley, Staff

Maximum credit in course, 6 hrs. Prereq., 334, 353.

FOOD SERVICE MANAGEMENT

Mrs. Macauley (chairman)

327. QUANTITY COOKERY (3) Macauley

Preparation and serving of foods in large quantities. Use of modern equipment. Laboratory practice in the cafeteria and residence halls of Ohio University.

342. MARKETING AND FOOD COST CONTROL (2) Macauley

Studies in production, distribution and storage of food supplies to serve as a basis for the purchase of such commodities for quantity use. Record keeping involved in food service. 1 lec., 2 lab. Prereq., 327.

343. EQUIPMENT AND FURNISHINGS (2) Macauley

Kitchen planning and selection of equipment including materials, construction, installation, operation, care, and relative cost; floor plans and specifications. 1 lec., 2 lab. Prereq., 327.

348. ORGANIZATION AND MANAGEMENT (3) Macauley

Principles of organization and administration which apply to food units in school lunch rooms, and public and private institutions. Administration of labor; standards of work; cost control. Prereq., 327.

TEXTILES AND CLOTHING

Miss Bane (chairman)

300. NEW DEVELOPMENTS IN TEXTILES (2) Cowan

New developments in textile fibers with special emphasis on new fibers, their characteristics, uses, and care. (Summer only.)

301. TECHNIQUES IN TEACHING CLOTHING CONSTRUCTION (1 to 3) Bane

Special problems in sizing, alteration, fitting, and construction as applied to teaching the high school student. Prereq., 316 or equivalent, teaching experience or certification to teach home economics. (Summer only.)

302. TECHNIQUES IN TEACHING CLOTHING SELECTION (1) Bane

Methods of presenting clothing selection on the high school level with emphasis on psychological and economic aspects of clothing. Consumer and market trends to be included. Prereq., 316 or equivalent, teaching experience or certification to teach home economics. (Summer only.)

310. TECHNIQUES IN CLOTHING DESIGN (3) Bane

An advanced course in clothing that offers opportunity for creative expression and for an understanding of patterns through the medium of flat pattern design. 2 lec., 4 lab.

313. CLOTHING AND TEXTILES FOR THE CONSUMER (2) Cowan

Problems presented to the buyer and the consumer in purchasing textile products such as lingerie, home-furnishing fabrics, ready-to-wear, and accessories. (1st sem., 1965-66.)

314. FASHION MERCHANDISING (3) Bane

A study of retail practices related to the field of fashion. Publicity and promotion, stock control, buying and selling of fashion merchandise. (2nd sem., 1965-66.)

315. HISTORY OF COSTUME AND TEXTILES (2) Cowan

Study of costume and textiles through the ages as a basis for the understanding and application of present-day costumes. (1st sem., 1964-65.)

316. TAILORING (3) Bane

Tailoring of suits or coats. Emphasis placed on professional techniques, advanced fitting problems, and construction of high fashion garments. 6 lab. and demonstration.

318. ADVANCED TEXTILES (3) Cowan

Physical and chemical examination of fibers and fabrics. Problems in the comparison and evaluation of fabrics. 1 lec., 4 lab. (1st sem.)

319. ADVANCED STUDIES IN TEXTILES (3) Cowan

Application of testing techniques applied to specific textile studies. 1 lec., 4 lab. (2nd sem., 1964-65.)

HUMAN RELATIONS

Professor A. C. Anderson

Associate Professors B. R. Black (chairman), L. A. Ostlund

Assistant Professors Butler, Dutton

Students who desire to major in human relations will be accepted on the basis of an interview with the graduate committee of the department.

The undergraduate preparation of the student should consist of not fewer than 18 hours in social sciences and specific preparation in the appropriate field or area of interest in human relations. In rare and unusual cases the graduate committee of the department may accept other training and experience in lieu of some of the above requirements.

A major in human relations leading to the Master of Arts degree shall consist of a minimum of 18 hours in courses approved by the graduate committee of the department, including 303 and 304 if the student has not taken these courses on the undergraduate level.

For a minor in human relations, the student is required to have the prerequisites for each course approved for the minor program.

303-304. HUMAN RELATIONS (3-3) A. C. Anderson, Black, Ostlund

A course taught by the case method, designed for students interested in studying the habits and skills of analysis, judgment, and action important to people in all walks of life. (303, each sem.; 304, 2nd sem., yearly.)

325. FIELD WORK OR RESEARCH (1 to 3) Staff

An opportunity for individual work in a specialized area of human relations; field work in human relations; or research under the direction of the staff. Maximum credit in course, 5 hrs. Prereq., 303, permission. (Each sem.)

384. GROUP DYNAMICS

(3) Ostlund

Principles and techniques used in research concerning groups and their members. The content includes variables such as structure, process, products, and changes, as well as a background of history, theories, techniques, and applications of group dynamics. (2nd sem., yearly.)

486, 487. PRACTICUM IN STUDENT PERSONNEL ADMINISTRATION

(3, 3) Butler, Dutton

Practice in working under supervision in: residence halls, fraternities, sororities, environmental health, off-campus housing, student government, student organizations, offices of the personnel deans, foreign student advising and programming, student discipline, extra-curricular activities, student publications, campus religious affairs. Prereq., second and third year graduate student in human relations and in student personnel services; permission. (Yearly.)

491. SEMINAR IN HUMAN RELATIONS

(3) Ostlund, staff

The course will offer lectures and a practicum in experimentation and research writing in the social sciences. Students will present projects for class analysis. Prereq., 303, permission. (1st sem., yearly.)

493, 494. SEMINAR IN STUDENT PERSONNEL ADMINISTRATION

(3, 3) Black

Designed for those specializing in student personnel work. Emphasis on philosophy and current trends in student personnel work and administrative procedures for effective coordination of services within a student personnel program. Prereq., 18 hrs. social sciences; permission. (Yearly.)

495. THESIS

(1 to 6) Staff

Prereq., permission.

INDUSTRIAL ARTSAssociate Professors Hawk, Paige
(chairman), Perry

Assistant Professors R. J. Baird, Covert, Squibb

A student electing a graduate major in industrial arts shall have completed an undergraduate minor of 27 hours in industrial arts or its equivalent as determined by the graduate committee of the Industrial Arts Department.

To begin a graduate minor in industrial arts, the student will be expected to have a minimum of nine hours of approved work.

302. DEVELOPMENT OF TEACHING AIDS FOR INDUSTRIAL EDUCATION

(2) Perry

Construction of aids based upon analysis of teaching situations. 4 lab. Prereq., teaching experience.

316. PROJECT DEVELOPMENT

(3) Baird

Development of original projects with related instructional materials applicable to selected areas of industrial arts.

328. SPECIAL PROBLEMS IN INDUSTRIAL ARTS

(1 to 3) Staff

Research on selected problems.

399. WORKSHOP IN DRIVER EDUCATION

(1 to 3) Covert

A course for teachers. Activity guided by problems in present programs, Prereq., certification in driver education. (Summer only.)

403. CURRENT TRENDS AND DEVELOPMENTS IN INDUSTRIAL EDUCATION (2) Staff

New developments and undertakings in the field of industrial education as interpreted by visiting personnel.

426. HISTORY AND PHILOSOPHY OF INDUSTRIAL EDUCATION (3) Hawlk**450a, b, c, d. ADVANCED WORK IN WOOD, METAL, GRAPHIC ARTS,
OR POWER** (2) Staff

The course may be repeated in different areas for a maximum credit of 6 hours. 4 lab.

457. PROGRAM PLANNING IN INDUSTRIAL ARTS (3) Baird

Planning industrial arts curricula for specific schools.

471. ADMINISTRATION AND SUPERVISION OF INDUSTRIAL EDUCATION (2 or 3) Staff

Problems and practices of supervising vocational and nonvocational industrial education in the public schools.

481. RESEARCH IN INDUSTRIAL ARTS (1 to 3) Perry

A written report of the investigation is to be presented to the departmental graduate committee. May be repeated for maximum credit of 6 hours. Prereq., Ed. 488.

491. SEMINAR IN INDUSTRIAL ARTS EDUCATION (1 to 3) Staff

May be repeated for maximum credit of 6 hours.

495. THESIS (1 to 6) Staff

Prereq., permission.

JOURNALISM

Professors Baird, Hortin (director),
Turnbull

Associate Professors Gentry, Hart, Sargent, Wagner

The School of Journalism offers graduate work in all its five sequences: (1) News Writing and Editing, (2) Advertising-Management, (3) Magazine Journalism, (4) Public Relations, (5) and Radio-Television News.

To begin a graduate major, a student should have a minimum of 12 hours of basic journalism courses and 6 additional hours of approved work in journalism or related fields.

To begin a graduate minor in journalism, courses prescribed as prerequisites, or approved equivalents are required. These prerequisites usually total 6 to 12 hours.

303. TELEVISION NEWS PRODUCTION (2) Wagner

The preparation and production of television news. Experiments in visual presentation of news and discussion of the organization and policies of the television newsroom. Prereq., permission.

304. PROBLEMS OF BROADCAST NEWS (2) Wagner

Discussion of problems—technical, editorial and ethical—faced by broadcast media in covering today's news. Research and problem solving in the use of advanced news processes, including analysis, commentaries, editorials, forums and documentaries. Prereq., 303 and permission.

306. NEWSPAPER AND COMMUNICATIONS LAW (2) Hart, Hortin

Principles and case studies of the law of the press with emphasis on constitutional guarantees, libel, contempt, privacy, copyright, privilege, and administrative controls. Some consideration of regulations pertaining to radio and television.

307. REPORTING OF PUBLIC AFFAIRS (2) Gentry

Includes a study of governmental, civic, and business organizations: courts, legal procedure, city and county government, state and national organizations, banks, political parties, and community activities.

309. RADIO-TELEVISION ADVERTISING AND MANAGEMENT (3) Turnbull

A study of the business principles and practices in the broadcasting industry, dealing with problems in radio and television station operation, with major emphasis on time sales.

322. FEATURE AND MAGAZINE WRITING (3) Baird

A study of newspaper, magazine, and pictorial features, followed by practice in writing and marketing of various types. The course includes finding subjects, securing photographs, writing articles, and surveying markets. Prereq., permission.

323. ADVANCED FEATURE AND MAGAZINE WRITING (2) Gentry

Students are permitted wide range in selecting feature subjects. High-grade writing is stressed with definite idea of publication. Prereq., 322.

325. THE EDITORIAL PAGE (2) Gentry

A study of the editorial page as to purpose, style, and effect. Training is given in writing interpretive news articles, columns, and all types of editorials. Prereq., permission.

327. PUBLIC RELATIONS TECHNIQUES (3) Hortin

Study and practice of fundamental public relations functions. Emphasis is placed on polling, publicity writing, and preparation of literature of business organizations—house organs, reports, pamphlets, advertisements, leaflets, manuals, and letters. Prereq., permission.

328. PUBLIC RELATIONS (3) Hortin, staff

A study of advanced public relations problems, policies, and practices of various institutions and organizations in modern society. Attention is focused on public relations program development. Prereq., 327 or permission.

329. BUSINESS AND MAGAZINE JOURNALISM (2) Baird

Study of industrial, business, and institutional publications. Analysis of contents, purposes, and readership of such publications. Practice in copy preparation and make-up. Staff, costs, printing, and circulation are considered.

343. NEWSPAPER MANAGEMENT (2) Turnbull

A study of the problems and economics of publishing. Consideration is given to policy making as it affects all departments of the newspaper plant.

348. ADVERTISING PRODUCTION (2) Turnbull

Study of mechanical, graphic, and creative methods of advertising production; comparative analysis of printing processes; relation of color, art work, type, media, and quality of paper to advertising purpose; study of cost and controls. Prereq., Advt. 332 or permission.

370. INTERNSHIP

(3) Staff

A conference course open only to students who have completed their internship work with an approved organization. Students will submit a comprehensive report involving analysis and problems encountered during the summer training. Prereq., permission.

375. SPECIALIZED JOURNALISM

(3) Wagner

A course designed for students desiring training in special fields—science, sports, society, politics, military, home economics, agriculture, religious activities, teaching journalism, music, and other approved areas. Prereq., permission.

376. GRAPHIC PRODUCTION PROCESSES

(3) Turnbull, staff

Advanced study of all processes for reproducing the printed word and pictures, including photoengraving, lithography, letterpress, rotogravure, mimeographing, and duplicating. Emphasis is placed on developing a thorough understanding of the latest developments in each field as they affect editing, advertising, public relations, and television news. Includes theory and laboratory work in preparation of written and photographic copy for each process. Prereq., permission.

378. SUPERVISING SCHOOL AND COLLEGE PUBLICATIONS (3) Baird, staff

A conference course for advisers of high school and college newspapers, magazines, and yearbooks. Problems relating to staff selection, content of publications, copy, layout, photography, printing, advertising, and business phases. In summer sessions the Publications Workshop will be analyzed on a case study basis. Prereq., permission.

381. RESEARCH IN JOURNALISM

(1 to 8) Sargent, staff

Prereq., permission.

403. SEMINAR IN THEORY OF MASS COMMUNICATIONS

(3) Gentry, Hart, Sargent

Examination and discussion of problems of mass communications, their role as social institutions, their control and support, and their effects. Study of thesis writing and selection of a thesis problem. Prereq., permission.

405. SEMINAR IN RESEARCH METHODS

(3) Sargent

A study of the methods of empirical research in mass communications: research techniques, readership studies, readability formulas, content analyses, questionnaire techniques and interviews. Prereq., 403 or permission.

406. INTERNATIONAL COMMUNICATIONS

(2) Hart

Advanced study of communications problems and practices of the major countries of the world and the flow of news among them. A comparative analysis of the operating procedures in relation to: newspapers, news agencies, magazines, books, radio, television, public relations, advertising, and management. The relation of communications media to international policies and programs. Prereq., permission.

409. LITERATURE OF JOURNALISM

(2) Hart

Directed reading and discussion of outstanding professional literature in the field of journalism. Emphasis will be on histories, biographies, and great writings of well-known journalists. Prereq., 403.

425. GOVERNMENT AND MASS COMMUNICATIONS

(3) Staff

Communications and political order, theory and structure of democratic and totalitarian communications systems, relationship between government and mass communications in the modern world. Prereq., permission.

495. THESIS

(1 to 6) Staff

Prereq., permission.

LATIN—See Classical Languages

MANAGEMENT (Minor only) Professor Hellebrandt (chairman)
 Associate Professors Greenwood, Ralph D. Smith
 Assistant Professors Bolon, Weaver

To begin a minor in management, a student must have completed Principles of Economics and Industrial Management.

301-302. PRODUCTION MANAGEMENT (3-3) Hellebrandt, Ralph Smith

301. An introduction to the more important production procedures and techniques. Deals with the operating production problems of the factory manager. Case and semi-laboratory method.

302. Problems of the executive factory manager. Development of ability to analyze and solve production problems and formulate production policies. Introduction to quantitative techniques in production management. Prereq., 301 or permission.

308. PRODUCTION PLANNING AND CONTROL (3) Ralph Smith

Developing a scientific approach to the solution of planning and control problems in any type of production or management activity. Prereq., permission.

310. MANAGEMENT RESPONSIBILITIES IN SOCIETY (3) Greenwood

Prereq., permission.

312. ADMINISTRATION OF PERSONNEL (3) Bolon

Prereq., permission.

314. PERSONNEL MANAGEMENT PROBLEMS (3) Bolon

A detailed study of personnel problems and their relation to various personnel management principles dealing with such subjects as induction and training, transfers and promotions, and morale. Taught by case method. Prereq., 312 or permission.

321. MOTION AND TIME STUDY (3) Ralph Smith

An introduction to methods, time study, and wage payment. Includes considerable practical as well as theoretical work in the areas of operation analysis, motion study, micromotion study, predetermined time systems, stop watch time study, standard data, and work sampling. Prereq., 301 or permission.

325. INDUSTRIAL RELATIONS (3) Hellebrandt

Objectives, establishment, and procedures of collective bargaining; administration of collective bargaining agreements; labor-management cooperation; the methods of conciliation, mediation, and arbitration of disputes. Taught by case method.

330. OFFICE MANAGEMENT (3) Weaver

(Same as Sec. St. 330.) Analysis of information activities and flows in the business enterprise as a system. Includes case problems.

332. WAGE AND SALARY ADMINISTRATION (3) Bolon

The factors determining industrial wage and salary policies, methods of employee payments, wage relationships, wage rate setting, incentive wage plans. The techniques and methods of implementing wage and salary policies. Prereq., 302 or 312.

340. ORGANIZATION

(3) Weaver

Study of the development of organizational theory and management thought as applied to administration, staff, and operating management. Development of individual, operating management concepts which students can use as a basis for analysis of business problems and evaluation of organizational performance.

345. ADVANCED PRODUCTION PROBLEMS

(3) Hellebrandt

Case studies of production problems in a number of different industries; designed to apply to all phases of the student's training and experience. Prereq., 302 or permission.

350. ELECTRONIC DATA PROCESSING METHODS

(3) Weaver

Principles of electronic data processing and of electronic computers; designed to provide background information necessary for understanding the effect of computers on business management and organization. Includes the use of the incident process and case studies. Prereq., 330, permission.

360. OPERATIONS RESEARCH

(3) Staff

Study of objectives of operations research and of techniques used; designed to provide understanding of its purposes and applications in business. Includes consideration of linear programming, dynamic programming, and other operations research techniques. Prereq., 340 and 350 or permission.

380. MANAGEMENT POLICIES AND PRACTICES (3) Greenwood, Hellebrandt

The integration of the subject matter in the functional areas of the core curriculum through the study of the problems of top management organization, administration techniques, and policy formulation.

381. RESEARCH IN MANAGEMENT

(1 to 8) Staff

Prereq., 301 or 312, and permission.

391. SEMINAR IN MANAGEMENT

(2 to 4) Staff

Maximum credit in course, 10 hrs. Prereq., permission.

410. BUSINESS POLICY

(3) Hellebrandt

An integration of the work in the functional areas. Complex case studies calling for an analysis of the various activities within a firm and their place in the framework of the industry in which it competes and the area in which it operates.

A top management view of decision making affecting the future operations of a business and the opportunities, risks, and responsibilities accompanying the formulation of company policy. Prereq., 12 hrs. graduate credit in business administration, including economics.

481. RESEARCH, ANALYSIS, AND REPORT WRITING

(3) Krauskopf

Prereq., permission.

491. SEMINAR IN MANAGEMENT

(2 to 4) Staff

Maximum credit in course, 8 hrs. Prereq., permission.

495. THESIS

(1 to 6) Staff

Prereq., permission.

Additional courses: Ec. 335 — Labor Economics, Ec. 338 — Labor Legislation, Psych. 361 — Seminar in Psychological Problems in Industry, Stat. 303 — Statistical Quality Control, Stat. 341 — Business Cycles, Stat. 345 — Forecasting, Stat. 350 — Recent Trends in Statistical Techniques.

MARKETING-ADVERTISING (Minor only)

To begin a minor in marketing-advertising for degrees other than the Master of Business Administration, only the completion of basic courses satisfactory to the department is necessary.

MARKETING

Professor Krauskopf (chairman)
Associate Professors Paynter, Raymond
Assistant Professor Richmond

301. RETAIL SELLING POLICIES (3) Paynter
The organization and operation of retail institutions.
302. RETAIL BUYING AND STOCK CONTROL (3) Paynter
A study of buying, receiving, and stock control practices in retail stores. Prereq., 301.
311. RECENT TRENDS IN MARKETING AND SELLING (3) Krauskopf, Paynter
325. INDUSTRIAL MARKETING (3) Paynter, Raymond
A consideration of the problems involved in the marketing of industrial goods.
326. INDUSTRIAL PURCHASING (3) Paynter
A study of the procedures and problems involved in the procurement of industrial goods.
341. FOREIGN TRADE (3) Paynter
A study of the theories of foreign trade and of the problems of concerns engaged in importing and exporting.
346. FOREIGN MARKETS (2) Paynter
A study of foreign markets from the point of view of the American exporter.
352. PROBLEMS IN SALES MANAGEMENT (2) Raymond
Problems of sales administration and selling policies by the case method. Prereq., permission.
381. RESEARCH IN MARKETING (1 to 8) Staff
Prereq., permission.
391. SEMINAR IN MARKETING (2 to 4) Staff
Maximum credit in course, 10 hrs. Prereq., permission.
458. MARKETING MANAGEMENT (3) Raymond
Cases and problems involving management decisions concerning trade channels, pricing, product development, sales organization, and sales promotion.
491. SEMINAR IN MARKETING (2 to 4) Staff
Maximum credit in course, 8 hrs. Prereq., permission.
495. THESIS (1 to 6) Staff
Prereq., permission.

ADVERTISING

Professors Krauskopf (chairman), Turnbull
Associate Professors Paynter, Raymond
Assistant Professor Richmond

332. COPYWRITING

(2) Turnbull
The elementary essentials of copy developed by the study of current theory and analysis of tested examples. Considerable constructive work is required.

376. ADVERTISING PROBLEMS

(3) Krauskopf, Richmond
Emphasizes administrative problems and the coordination of advertising with other marketing activities.

381. RESEARCH IN ADVERTISING

(1 to 8) Staff

Prereq., permission.

391. SEMINAR IN ADVERTISING

(2 to 4) Staff

Maximum credit in course, 10 hrs. Prereq., permission.

495. THESIS

(1 to 6) Staff

Prereq., permission.

Additional courses:

Jour. 309—Radio-Television Advertising and Management

Jour. 327—Public Relations Techniques

Jour. 328—Public Relations

Jour. 348—Advertising Production

MATHEMATICS

Professors Denbow, Goedcke, Marquis
Associate Professors Butner, Fishback (chairman),
Jasper, Spring
Assistant Professors McCue, Mack
Instructors Golos, Shankar, Wyzalik

A student may begin a graduate major with 21 hours of mathematics, including the equivalent of at least two 300 level courses. Completion of courses 322 and 342 is required of all master's degree candidates.

301. ARITHMETICAL AND ALGEBRAIC SYSTEMS

(3) Butner, Golos

Properties and structures of number systems; selected topics from theory of equations and linear algebra. (Each sem.)

308. PROJECTIVE GEOMETRY

(3) Fishback, Marquis

(2nd sem., 1964-65.)

311. NUMERICAL ANALYSIS

(3) Goedcke, Spring

An investigation of numerical methods for approximate solution of applied problems. Topics will include interpolation theory, curve fitting, approximate integration, and the numerical solution of differential equations. (1st sem., 1964-65.)

313. VECTOR ANALYSIS

(2) Goedcke, Wyzalik

(1st sem., yearly.)

314. FOURIER ANALYSIS AND PARTIAL DIFFERENTIAL EQUATIONS (2) Marquis, Shankar
 (Each sem.)
318. PRINCIPLES OF DIGITAL COMPUTER PROGRAMMING (3) Marquis, Spring
 Prereq., 311. (2nd sem., yearly.)
321. MATRIX THEORY (3) Shankar, Spring
 Matrix algebra and determinants, linear equations, vector spaces and linear transformations, characteristic equations, and quadratic forms. (1st sem., yearly.)
322. INTRODUCTION TO MODERN ALGEBRA (3) Butner, Spring
 Elementary theory of groups, fields, and rings. Prereq., 301, or 321. (2nd sem., yearly.)
- 331-332. THEORY OF STATISTICS (3-3) Butner, McCue
 Probability, distributions of one and several variables, sampling theory, estimation of parameters, confidence intervals, analysis of variance, correlation and testing of statistical hypotheses. (Yearly.)
- 341-342. ADVANCED CALCULUS (3-3) Mack, Wyzalik
 Critical treatment of limits, continuity, differentiation of functions of one and several variables, series, and theory of integration. (Yearly.)
- 343-344. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE (3-3) Marquis, Shankar
 Prereq., 315 or 341 for 343. (1964-65.)
346. THEORY OF FUNCTIONS OF REAL VARIABLES (3) Mack
 Prereq., 341. (2nd sem., 1965-66.)
347. POINT SET TOPOLOGY (3) Mack
 An introduction to set theory and general topological spaces with an emphasis on the study of metric spaces. Prereq., 341. (1st sem., 1965-66.)
361. STUDIES IN MATHEMATICS (1 to 6) Staff
 Selected topics in mathematics are studied under the guidance of an instructor particularly interested in the field. Maximum credit, 6 hours. Prereq., permission.
362. SELECTED TOPICS IN MATHEMATICS (3) Staff
 Maximum credit in course, 6 hours. Prereq., permission. (Each sem.)
495. THESIS (1 to 6) Staff
 Prereq., permission.

MODERN LANGUAGES

French

German

Russian

Spanish

Professors Krauss, Renkenberger
 (chairman)
 Associate Professors Cameron, Rice
 Assistant Professor Hammer
 Instructors Franks, Ipacs

To begin a graduate major in a modern foreign language, the student must have completed the requirements for the Bachelor of Arts major in that language or the equivalent.

To begin a graduate minor, the student must have completed a minimum of four hours of undergraduate work in the language at the second year level or the equivalent.

Graduate students majoring in a modern foreign language are required to take courses 421-422 in that language.

FRENCH

| | | |
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| 316. FRENCH RENAISSANCE (1st sem., 1964-65.) | (3) | Staff |
| 317. FRENCH CLASSICISM (2nd sem., 1964-65.) | (3) | Staff |
| 318. AGE OF ENLIGHTENMENT (1st sem., 1965-66.) | (3) | Staff |
| 319. NINETEENTH CENTURY FRENCH LITERATURE (2nd sem., 1965-66.) | (3) | Staff |
| 320. CONTEMPORARY FRENCH LITERATURE (1964-65.) | (3) | Staff |
| 351. ADVANCED COMPOSITION AND STYLE (1st sem., 1965-66.) | (2) | Staff |
| 352. ADVANCED CONVERSATION AND PHONETICS (2nd sem., 1965-66.) | (2) | Staff |
| 371, 372. ADVANCED FRENCH (Given upon sufficient demand.) | (1 to 3, 1 to 3) | Staff |
| 399. BIBLIOGRAPHY AND RESEARCH PROBLEMS (Given upon sufficient demand.) | (2) | Staff |
| 401, 402. FRENCH FOR GRADUATE READING REQUIREMENT | (0,0) | Staff |
| 421-422. ROMANCE PHILOLOGY (OLD FRENCH) (1965-66.) | (2-2) | Staff |
| 471, 472. READING AND RESEARCH | (1 to 4, 1 to 4) | Staff |
| 481, 482. SEMINAR | (2, 2) | Staff |
| 495. THESIS Prereq., permission. | (1 to 6) | Staff |

GERMAN

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| 311, 312. NINETEENTH CENTRY GERMAN DRAMA (1965-66.) | (3, 3) | Staff |
| 313. CLASSICAL GERMAN DRAMA (1st sem., 1964-65.) | (3) | Staff |
| 314. GOETHE'S FAUST (2nd sem., 1964-65.) | (3) | Staff |

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| 319-320. NINETEENTH CENTURY GERMAN SHORT STORY (1965-66.) | (2-2) | Staff |
| 321. CONTEMPORARY GERMAN SHORT STORY (1st sem., 1964-65.) | (2) | Staff |
| 323. GERMAN LYRICS AND BALLADS (1st sem., 1965-66.) | (2) | Staff |
| 326. TWENTIETH CENTURY DRAMA (2nd sem., 1964-65.) | (3) | Staff |
| 327. BAROQUE AND ENLIGHTENMENT (2nd sem., 1965-66.) | (3) | Staff |
| 351. ADVANCED COMPOSITION AND STYLE (1st sem., 1965-66.) | (2) | Staff |
| 352. ADVANCED CONVERSATION AND PHONETICS (2nd sem., 1965-66.) | (2) | Staff |
| 371, 372. ADVANCED GERMAN (Given upon sufficient demand.) | (1 to 3, 1 to 3) | Staff |
| 399. BIBLIOGRAPHY AND RESEARCH PROBLEMS (Given upon sufficient demand.) | (2) | Staff |
| 401, 402. GERMAN FOR GRADUATE READING REQUIREMENT (Yearly.) | (0, 0) | Staff |
| 421-422. GERMANIC PHILOLOGY (MIDDLE HIGH GERMAN) (1965-66.) | (2-2) | Staff |
| 423. GERMAN LITERATURE OF THE MIDDLE AGES Prereq., 422. (1st sem., 1964-65.) | (3) | Staff |
| 471, 472. READING AND RESEARCH | (1 to 4, 1 to 4) | Staff |
| 481, 482. SEMINAR | (2, 2) | Staff |
| 495. THESIS Prereq., permission. | (1 to 6) | Staff |

RUSSIAN

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| 319, 320. NINETEENTH CENTURY RUSSIAN POETRY Pushkin, Lermontov. (1964-65.) | (3, 3) | Staff |
| 321, 322. NINETEENTH CENTURY RUSSIAN NOVEL Gogol, Turgenev, Tolstoy, Dostoevsky. (1965-66.) | (3, 3) | Staff |
| 371, 372. ADVANCED RUSSIAN | (1 to 3, 1 to 3) | Staff |

SPANISH

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| 305. DRAMA OF THE GOLDEN AGE (1st sem., 1964-65.) | (3) | Staff |
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| 306. NOVEL OF THE GOLDEN AGE (2nd sem., 1964-65.) | (3) Staff |
| 308. CERVANTES (1st sem., 1965-66.) | (2) Staff |
| 309. SPANISH MEDIEVAL LITERATURE (2nd sem., 1965-66.) | (2) Staff |
| 311, 312. SPANISH-AMERICAN LITERATURE (1965-66.) | (3, 3) Staff |
| 313. NINETEENTH CENTURY SPANISH LITERATURE (1st sem., 1964-65.) | (3) Staff |
| 314. CONTEMPORARY SPANISH LITERATURE (2nd sem., 1964-65.) | (3) Staff |
| 351. ADVANCED COMPOSITION AND STYLE (1st sem., 1965-66.) | (2) Staff |
| 352. ADVANCED CONVERSATION AND PHONETICS (2nd sem., 1965-66.) | (2) Staff |
| 371, 372. ADVANCED SPANISH (Given upon sufficient demand.) | {1 to 3, 1 to 3} Staff |
| 399. BIBLIOGRAPHY AND RESEARCH PROBLEMS (Given upon sufficient demand.) | (2) Staff |
| 401, 402. SPANISH FOR GRADUATE READING REQUIREMENT | (0, 0) Staff |
| 421-422. ROMANCE PHILOLOGY (OLD SPANISH) (1964-65.) | (2-2) Staff |
| 471, 472. READING AND RESEARCH | {1 to 4, 1 to 4} Staff |
| 481, 482. SEMINAR | (2, 2) Staff |
| 495. THESIS Prereq., permission. | {1 to 6} Staff |

MUSIC

Applied Music
 History and Literature
 Theory and Composition
 Music Education

Professor Ahrendt (director)
 Associate Professors Crews, Jennings,
 Minelli, P. Peterson, Stephenson
 Assistant Professors Boxberger,
 Brophy, Conkling, S. Hall,
 Harbachick, Hodkinson, Kaneshige,
 Katz, Longstreet, Merritt, R. Smith,
 Thackrey, Wickstrom, Witzler
 Instructors Bors, Jackson
 Lecturers Henderson, Sanov, Suess

To major in music an applicant for admission is required to have finished successfully a four-year undergraduate curriculum in music from an institution which holds membership in the National Association

of Schools of Music, or from any other accredited institution offering undergraduate music degrees equivalent in hours and content. In addition, all new graduate students are subject to a proficiency examination in general background, and in their major and minor areas. If deficient, the student will be required to take appropriate courses to remove the deficiency. This will be determined by examination during registration week, the results of which will be used to designate the program of study. In cases where the undergraduate preparation is not in the area planned for graduate study, the student must demonstrate a level of achievement fully equivalent to that provided by the bachelor's degree in the field concerned.

All graduate programs are based upon the completion of a minimum of 27 hours of work plus thesis, beyond the bachelor's degree. All programs are divided into a major and minor area. A student wishing to do graduate work in music composition or in applied music is required to take a minimum of 16 hours in the major area, while majors in music theory, the history and literature of music, and music education take from 20 to 24 hours in their major area. A thesis or its equivalent is required of all graduate students. An original composition in a large form in the case of composition majors, or a graduate recital in the case of majors in applied music may be offered in lieu of thesis. In certain exceptional cases in which the student's advisory committee feels an unusual emphasis on applied music to be of special importance to the student's program of study, the student in music education may, on the recommendation of his advisors, apply to the Graduate Committee in Music for permission to present a graduate recital in lieu of thesis. The minor field may include any of the other areas offered in the School of Music. The minor in music education may include from 8 to 12 hours in another area of music, or in education.

APPLIED MUSIC

Private instructional fee for all applied music (piano, voice, organ, strings, woodwind, brass, percussion), \$25 a semester hour.

(Note: A description of the proficiency requirements for applied music may be secured from the School of Music.)

331. PIANO ENSEMBLE (1) Staff

Participation in the playing of original works or arrangements for two pianos. Prereq., permission.

332. VOCAL ENSEMBLE (1) Staff

Participation in the singing of standard madrigal and motet literature. Prereq., permission.

375. ADVANCED CONDUCTING (1 to 4) Staff

An opportunity for study and practical experience in either choral or instrumental conducting. Maximum credit in course. 6 hrs. Prereq., permission.

399. APPLIED MUSIC a, b, c, d, e, f (1 to 4) Staff

Open to graduate students only, in the minor area. Maximum credit in course, 8 hrs.

a. Voice

b. Piano

c. Stringed Instruments

d. Woodwind Instruments

e. Brass Instruments

f. Percussion Instruments

431. VOICE (1 to 4) Harbachick, Jackson, Merritt, Peterson.

Maximum credit in course, 16 hrs. Prereq., permission.

- 433a. PIANO (1 to 4) Jennings, Katz, Longstreet
Maximum credit in course, 16 hrs. Prereq., permission.
- 433b. ORGAN (1 to 4) Wickstrom
Maximum credit in course, 16 hrs. Prereq., permission.
435. ENSEMBLE (1 to 4) Staff
Maximum credit in course, 16 hrs. Prereq., permission.
437. STRINGED INSTRUMENTS (1 to 4) Conkling, Sanov
Maximum credit in course, 16 hrs. Prereq., permission.
438. BRASS INSTRUMENTS (1 to 4) Brophy, Smith
Maximum credit in course, 16 hrs. Prereq., permission.
439. WOODWIND INSTRUMENTS (1 to 4) Hodkinson, Witzler
Maximum credit in course, 16 hrs. Prereq., permission.
495. RECITAL (1 to 4) Staff
A full-length public recital, a recording of which will be filed in the library, in lieu of thesis. Prereq., permission.

MUSIC HISTORY AND LITERATURE

337. THE LITERATURE OF VOCAL MUSIC (2) Suess
Representative literature from the fields of oratorio, choral music, and the art song.
338. THE LITERATURE OF ORCHESTRAL MUSIC (2) Suess
Orchestral literature from the classic through the contemporary.
339. THE EVOLUTION OF THE OPERA (2) Suess
340. THE LITERATURE OF PIANO MUSIC (2) Jennings
The development of the instrument, the primary forms adapted to it, and the representative composers.
344. CONTEMPORARY MUSIC (3) Suess
Music as an artistic expression of our time. A study of the various styles since c. 1900.
- 401-402. MUSIC LITERATURE (3-3) Suess
Prereq., permission.
441. MUSIC OF THE MEDIEVAL AND RENAISSANCE PERIODS (3) Suess
Music as an artistic expression of the Medieval and Renaissance periods; a history of the evolution of musical styles up to c. 1600.
442. MUSIC OF THE BAROQUE PERIOD (3) Suess
Music as an artistic expression of the Baroque period; a history of the evolution of musical styles c. 1600-c. 1750.
443. MUSIC OF THE CLASSIC AND ROMANTIC PERIODS (3) Suess
Music as an expression of the Classic and Romantic periods; a history of the evolution of musical styles c. 1750-c. 1900.
495. THESIS (1 to 6) Staff
Prereq., permission.

THEORY AND COMPOSITION

- 307-308. ARRANGING AND SCORING FOR BANDS (2-2) Minelli
Scoring and arranging for the modern marching and symphonic band.
- 313-314. ORCHESTRATION (2-2) Ahrendt
Scoring for small, medium, and full orchestra.
- 315-316. ADVANCED HARMONY (2-2) Hall
The evolution of harmony to the present, including the new methods of chord structure in modern harmony.
- 317-318. SIXTEENTH CENTURY COUNTERPOINT (2-2) Hodkinson
Based on the practices and styles of Palestrina.
- 319-320. COMPOSITION (2-2) Ahrendt
Original writing in the smaller forms.
367. COUNTERPOINT (2) Hall
Counterpoint in two, three, or four parts. Study of the invention, imitation and fugue.
368. ADVANCED FUGUE (2) Hall
Based on the eighteenth century style of Bach. Prereq., 318.
- 371-372. COMPOSITION (2-2) Ahrendt
Original writing in the larger forms. Prereq., 320.
381. RESEARCH IN MUSIC (1 to 4) Staff
Prereq., permission.
403. SEMINAR IN MUSIC (1) Staff
Reports on research by students or faculty, for discussion. Required of all graduate students enrolled in the School of Music. (Yearly.) Required credit, 2 hrs. Prereq., permission.
- 407-408. EVOLUTION OF HARMONIC THEORY (2-2) Hall
A study of the writings of the most important music theorists from the tenth century to the present. Prereq., 314, 316.
419. MODERN COUNTERPOINT (2) Hall
Based on the techniques of recent and contemporary composers. Prereq., 318.
- 425-426. COMPOSITION (2-2) Ahrendt
Extensive writing in the larger vocal and instrumental forms. Prereq., 372.
- 427-428. ADVANCED ORCHESTRATION (2-2) Ahrendt
Problems in scoring original works for the modern symphony orchestra. Satisfactory scores are performed by the University Symphony Orchestra. Prereq., 314, 318.
495. THESIS (1 to 6) Staff
Prereq., permission.

MUSIC EDUCATION

- 374. FOUNDATIONS OF MUSIC** (2 to 4) Boxberger
 A lecture-laboratory course applying pertinent findings from the field of physics, acoustics, electronics, physiology, psychology and sociology to music education and music therapy. 2 lec., 3 lab., and research problem. Prereq., permission.
- 376a, b, c. MUSIC WORKSHOP** (1 to 4) Staff
 Maximum credit in course, 6 hrs.
 a. Music Clinic-Workshop (Summer only.)
 b. Opera Workshop
 c. Elementary Music Workshop (Summer only.)
- 470. CONTEMPORARY TRENDS IN MUSIC EDUCATION** (2) Stephenson
 Prereq., permission.
- 471. PROBLEMS IN THE SUPERVISION OF VOCAL MUSIC** (2) Stephenson
 2 lec.; lab. as required.
- 472. PROBLEMS IN THE SUPERVISION OF INSTRUMENTAL MUSIC** (3) Minelli
 2 lec.; lab. as required.
- 473. EXPERIMENTAL STUDIES IN MUSIC** (3) Boxberger
 Psychological investigations bearing upon musical composition, performance, and appreciation, 2 lec.; 2 lab. Prereq., permission.
- 495. THESIS** (1 to 6) Staff
 Prereq., permission.

PAINTING—See Art

- PHILOSOPHY** Professors Murphree (chairman), Organ
 Associate Professor Wieman
 Assistant Professors Barnes, Grean, Zweig
 Instructor Ruchti

Only students who have received a 3.0 (B) average in their undergraduate courses in philosophy and a 2.5 average in other undergraduate courses will be admitted as majors in philosophy. The prerequisite for beginning a graduate major is 12 hours, including courses in ethics and logic and one year in the history of philosophy.

The prerequisite for beginning a graduate minor is six hours in philosophy.

- 302. AESTHETICS** (3) Grean
 Selected theories of the nature of art and aesthetic experience and the relation of art to other aspects of human culture. (2nd sem., yearly.)
- 304. CONTEMPORARY SOCIAL PHILOSOPHY** (2) Murphree
 (2nd sem., 1965-66.)
- 305. THEORY OF KNOWLEDGE** (3) Ruchti
 A critical examination of various views of what knowledge is and how it is attained. (2nd sem., yearly.)

308. EASTERN PHILOSOPHY (2) Organ
Selected philosophers and systems of philosophy of India and China.
(2nd sem., 1964-65.)
310. PRAGMATISM (2) Murphree
Peirce, James, Dewey. (2nd sem., 1964-65.)
311. METAPHYSICS (2) Wieman
Basic assumptions underlying different conceptions of the world with special attention to materialism, formism, idealism, and contextualism. (1st sem., 1964-65; 2nd sem., 1965-66.)
315. PHILOSOPHY OF RELIGION (2) Green
Contemporary thought on the nature of religion, religious symbolism, and the relation of religion and culture. (1st sem., yearly.)
317. CONTEMPORARY PHILOSOPHY (2) Zweig
Modern positivism and linguistic analysis. (1st sem., 1964-65.)
321. PLATO (2) Wieman
(1st sem., 1965-66.)
322. ARISTOTLE (2) Organ
(2nd sem., 1965-66.)
331. CONTINENTAL IDEALISM (2) Staff
Kant, Schelling, and Hegel. (1st sem., 1964-65.)
333. EXISTENTIALISM (2) Staff
The development of existentialism from Kant through Schopenhauer to Camus. (1st sem., 1965-66.)
341. LOGICAL THEORY (3) Ruchti
Axiomatic formalization of logic, mathematical proof, and topics in metalogic. (2nd sem., 1964-65.)
391. SEMINAR IN PHILOSOPHY (1 to 3) Staff
Selected problems. Maximum credit in course, 6 hrs. (1st sem., yearly.)
495. THESIS (1 to 6) Staff
Prereq., permission.

PHOTOGRAPHY

Assistant Professor Truxell
Lecturers Allen, J. Anderson, White (chairman)

To begin a graduate major in photography, a student must present at least 12 hours of undergraduate credit in photography and 6 hours in art, and must submit evidence of photographic ability. To begin a graduate minor in photography, a student must present at least 12 hours of undergraduate credit in photography. See page 16 for detailed requirements.

377-378. PORTRAITURE

(3-3) Truxell

Traditional and experimental approaches to portraying the human face, the human figure in fashion and the dance, and certain situations dominated by people. Prereq., permission.

379-380. COMMERCIAL AND ILLUSTRATIVE PHOTOGRAPHY (3-3) White
Studio and location work in commercial, advertising, industrial, and architectural photography. Introduction to problems of studio operation and free-lance photography. 1 lec., 4 lab. Prereq., permission.

381. PROBLEMS IN PHOTOGRAPHY (3) Staff
Individual study and practice in a specialized phase of photography under instructor's supervision. Maximum credit in any one phase or combination of phases, 12 hrs. 6 lab. Prereq., permission.

- a. Individual selection of approved problems in photographic design, technique, or practice. 6 lab.
- b. Advanced theory and practice in picture stories and their production. 6 lab.
- c. 16 mm motion picture production. 6 lab.
- d. Special problems in color photography. 6 lab.

391-392. COLOR PHOTOGRAPHY (5-5) White
Theory of color photography, practice with color transparency materials, direct separations, separations from transparencies, masking, and color printing. 1 lec., 8 lab. Prereq., permission.

481. RESEARCH IN PHOTOGRAPHY (1 to 4) Staff
Maximum credit in course, 8 hrs. Prereq., 381 and permission.

495. THESIS (1 to 6) Staff
Prereq., permission.

PHYSICAL EDUCATION AND ATHLETICS Associate Professors
LaTourrette, Mason (chairman, graduate study),
Miller, Nessley (associate director), Rhoads,
Rohr (director), Trepp, Widdoes
Assistant Professors McComb, O'Neal, F. Phillips

A student wishing to begin a graduate major or minor in physical education will be expected to present a minimum of 24 hours of approved work in physical education or equivalent work as approved by the Division of Physical Education and Athletics.

304. HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION (3) Mason, Miller
Physical Education systems and their influences from the time of the Greeks; principles underlying physical education in the modern program of education. Prereq., Anatomy, Kinesiology, and Physiology.

306. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION (3) Mason, Miller
Methods of organizing and administering health and physical education, recreation, and athletics in schools and colleges.

309. TESTS AND MEASUREMENTS (3) Mason, Miller
Methods of evaluation in health education, physical education, and athletics; practice in handling testing data by elementary statistical methods.

349. COMMUNITY RECREATION (3) Nessley, O'Neal
History of the play movement, programs and program building, administration of playgrounds, community centers, and recreational activities.

352. PHYSICAL DIAGNOSIS

(3) Health Center Staff

Deficiencies and defects characteristic of children that handicap normal physical, mental, and social development, and the techniques in conducting health examinations and clinical service.

353. CLINICAL OBSERVATION AND PRACTICE IN PHYSICAL MEDICINE AND REHABILITATION

(4) V.A. Hospital Staff

A concentrated summer school field course at Veterans Administration Hospital, Chillicothe, Ohio. Instruction by hospital corrective therapy staff. Prereq., Anatomy, Kinesiology, and Physiology.

395. SCHOOL HEALTH PROBLEMS

(3) Trepp

Principles, problems, organization, and administration of school health programs including school and community relationships.

396. PROBLEMS OF INTERSCHOOL ATHLETICS

(3) Rhoads, Widdoes

Problems pertaining to interschool athletic competition at all age levels.

400. GUIDED INDEPENDENT STUDY

(1) Mason

Guided independent study of a selected problem with a written report based on the research. Maximum credit in course, 2 hrs.

401. PROBLEMS IN HEALTH AND PHYSICAL EDUCATION

(3) Mason

An investigation of selected problems in health education and physical education; research reading, discussion, analysis, written reports, examinations.

410. THE CURRICULUM IN PHYSICAL EDUCATION

(3) Mason

An analysis of the criteria and procedures for curriculum construction in physical education; a critical evaluation of courses of study; the development of written guides for programs in elementary and secondary schools, colleges, and universities.

491. SEMINAR IN PHYSICAL EDUCATION AND ATHLETICS

(3) Mason, Miller, Nessley

Research and investigation in health education, physical education, recreation, or athletics. Topics and problems suitable for thesis writing, methods of research, writing practice, and critical analysis of outlines for research study. Required of all master's degree candidates.

492. FOUNDATIONS OF HEALTH EDUCATION AND PHYSICAL EDUCATION

(3) Miller, staff

A summation of the scientific principles from biology, psychology, and sociology underlying the programming, instruction, and administration of health education and physical education.

495. THESIS

(1 to 6) staff

Prereq., permission. (Plan A candidates.)

Any of the following courses may be elected in meeting the requirements for the graduate major in physical education.

Zool. 305, PRINCIPLES OF PHYSIOLOGY

Psych. 336, SOCIAL

Psych. 437, 438, BEHAVIOR DISORDERS

Ed. 381, EDUCATIONAL STATISTICS

Ed. 382, ADVANCED EDUCATIONAL STATISTICS

Ed. 385, EDUCATIONAL MEASUREMENTS

Ed. 488, INTRODUCTION TO GRADUATE STUDY

PHYSICS

Professors Breitenberger, Edwards,
Randall (chairman)

Associate Professors Munir, Pierce, Sanford, Stumpf
Assistant Professors Barry, Chen, Dilley,
Finlay, Koshel, Shipman, Vittitoe

Graduate study leading to both the master's degree and the doctorate is offered in physics. Prospective students for these degree programs should have completed the requirements for a baccalaureate degree with a major in physics, including a working knowledge of mathematics through integral calculus. Students who lack such preparation are expected to make up deficiencies in addition to the normal graduate program of courses. The minimum undergraduate preparation for a graduate minor is eight hours of physics.

Courses in related fields may be included in the graduate program, as for example, chemistry, engineering, and mathematics. The graduate program in physics is individually planned for each student after a careful perusal of his background and experience.

The following courses are recommended for the first two years of graduate study. First year: 405-406, 407-408, and two hours of advanced laboratory. Second year: 410, 419-420, 425, 426, 450, and 461. Other physics courses or courses in related fields may be chosen to complete the program each semester.

305. LIGHT

(3) Finlay

Physical nature of light; geometric and physical optics. (2nd sem., 1964-65.)

308. X-RAYS

(2) Edwards

Physics of X-rays and crystallography; applications in chemistry, medicine, and physics. (1st sem., 1965-66.)

310. THERMODYNAMICS

(3) Stumpf

Fundamentals of heat, thermodynamics, kinetic theory and statistical mechanics. (1st sem., yearly.)

314. MODERN SPECTROSCOPY

(3) Randall

Atomic and molecular spectra at all frequencies and their interactions with matter; quantitative analysis. (1st sem., 1964-65.)

326. ACOUSTICS

(2) Stumpf

Fundamentals of acoustic sources and wave propagation. (2nd sem., 1965-66.)

327 through 332. ADVANCED PHYSICS LABORATORIES

(2 each) Staff

Fundamental physical principles and interpretation of data are emphasized through basic and advanced techniques and modern instrumentation for the chemist, engineer, and physicist.

327. OPTICS (1st sem., 1965-66.)

328. SPECTROSCOPY (2nd sem., yearly.)

329. ELECTRICAL MEASUREMENTS (2nd sem., yearly.)

330. ELECTRONIC CIRCUITS (1st sem., yearly.)

331. X-RAYS (1st sem., yearly.)

332. NUCLEAR PHYSICS (2nd sem., yearly.)

342. NEUTRON PHYSICS LABORATORY

(3) Sanford

Properties of the neutron and studies of the uranium reactor. (1st sem., yearly.)

- 349-350. ATOMIC AND NUCLEAR PHYSICS (3-3) Edwards
 Fundamental physical laws of atomic and nuclear structure.
 (Yearly.)
352. INTRODUCTION TO QUANTUM MECHANICS (3) Stumpf
 Introduction to basic universal physical laws in which energy and momentum are quantized. (2nd sem., yearly.)
360. SOLID STATE PHYSICS (3) Sanford
 Fundamental physical properties of the solid state of matter. Prereq., 314 or 349. (2nd sem., yearly.)
361. SPECIAL PROBLEMS (1 to 3) Staff
 Supervised research problems of limited scope in experimental and theoretical physics. Maximum credit in course, 8 hrs. (Yearly.)
365. NUCLEAR REACTOR THEORY (3) Sanford
 Nuclear physics and neutron theory with applications to reactor design and operation. (1st sem., yearly.)
- 405-406. CLASSICAL THEORETICAL PHYSICS (3-3) Barry
 Selected topics to provide insight and basic skills in problems of classical and statistical mechanics, thermodynamics, and electromagnetic theory. (Yearly.)
- 407-408. THEORETICAL MODERN PHYSICS (3-3) Vittitoe
 Selected topics to provide insight and basic skills in problems of the frontiers of physics. Prereq., 314 or 349. (Yearly.)
410. HIGH ENERGY PARTICLES (3) Munir
 Theoretical and experimental methods of the problems of fundamental particles of physics at high energies. Prereq., 407. (2nd sem., 1964-65.)
415. METHODS OF THEORETICAL PHYSICS (3) Breitenberger
 Basic solutions of problems in physical theory. (1st sem., yearly.)
- 419-420. QUANTUM MECHANICS (3-3) Breitenberger
 Matrix and wave mechanics methods for problems in the structure of matter. Prereq., 352, 406, 408. (Yearly.)
425. THEORETICAL MECHANICS (3) Chen
 Advanced treatment of kinematics, dynamics, energy, and momentum. Prereq., 406. (1st sem., yearly.)
426. ELECTROMAGNETIC THEORY (3) Barry
 Advanced treatment of electric and magnetic fields. Prereq., 406. (2nd sem., yearly.)
- 449-450. NUCLEAR THEORY (3-3) Finlay
 Fundamental facts and theories of the structure of nuclei and their interactions. Prereq., 420. (1st sem., yearly.)
460. THEORY OF THE SOLID STATE (3) Sanford
 Selected topics of current interest in solid state physics. Prereq., 352, 360, 408.
461. STATISTICAL MECHANICS AND THERMODYNAMICS (3) Chen
 Application of general theories to selected topics. Prereq., 419. (2nd sem., yearly.)

463. ADVANCED SOLID STATE THEORY (3) Chen
Advanced topics in the theory of solid state. Prereq., 460.
464. PHYSICS OF THE PLASMA STATE (3) Dilley
Fully ionized gases, magnetohydrodynamics, fusion. Prereq., 420, 461.
465. ADVANCED QUANTUM MECHANICS (3) Chen
Interactions between radiation and matter. Prereq., 420. (1st sem., 1965-66.)
470. QUANTUM FIELD THEORY (3) Dilley
Electromagnetic, nuclear, and gravitational fields from a quantum viewpoint. Prereq., 465. (2nd sem., 1965-66.)
475. ADVANCED NUCLEAR THEORY (3) Koshel
Theories of structure of nuclei and their interactions. Prereq., 420, 450. (2nd sem., 1964-65.)
481. RESEARCH (As recommended by dept.) Staff
Prereq., 24 hrs. (Yearly.)
- 489, 490. COLLOQUIUM (0, 0) Dilley
Selected topics. Required of all physics graduate students each semester in residence. (Yearly.)
- 491, 492. SEMINAR (1, 1) Staff
Intensive study of current research by special groups. (Yearly.)
495. THESIS OR DISSERTATION (As recommended by dept.) Staff
Prereq., permission.

PSYCHOLOGY

Professors A. Anderson, Klare, Paulsen,
Snyder (chairman), Uhrbrock
Associate Professors Bradshaw, Games, Pullen, Russell
Assistant Professors Bruning, Kintz, Koons, Thompson

To begin a graduate major in psychology the student must present an undergraduate scholastic average of 3.0 (B) in the major field, with a minimum of 18 hours of psychology or equivalent work, as approved by the department. Included in undergraduate preparation should be courses in statistics and in experimental psychology.

To begin a graduate minor in psychology, a minimum of eight hours in psychology is required.

Although the emphasis in the master's degree program is directed toward preparation for further study, specialization is offered in the areas of clinical, counseling, general-experimental, industrial, and school psychology. Internship arrangements for school psychology majors may be made through Psychology 455 or 456.

The facilities of the University Testing and Counseling Center and of the Psychological Service Center provide opportunities for the training of graduate students in psychology, as well as services to University students, staff, and faculty.

301. EXPERIMENTAL SENSORY PSYCHOLOGY (3) Staff
A systematic study of sensory processes, including vision, audition, gustation, olfaction, and somesthesia. 2 lec., 3 lab. (1st sem., yearly.)

- 303. LEARNING** (3) Staff
A study of methods and basic data in the areas of conditioning, discrimination learning, problem solving, habit formation, and retention. 2 lec., 3 lab. (1st sem., yearly.)
- 306. PSYCHOLOGY OF COMMUNICATION** (3) Klare
A psychological approach to the process of communication, with applications to problems in the social sciences. (2nd sem., yearly.)
- 308. PSYCHOLOGY OF SPEECH** (3) Brandes
See Dramatic Art and Speech.
- 310. MOTIVATION AND EMOTIONS** (3) Staff
The dynamics of animal and human behavior; a study of drives, desires, incentives; a study of emotion in relation to motives. (2nd sem., yearly.)
- 312. PHYSIOLOGICAL PSYCHOLOGY** (3) Thompson
A study of the relationship between behavior and the bodily processes in the intact organism. (2nd sem., yearly.)
- 314. COMPARATIVE AND GENETIC PSYCHOLOGY** (3) Thompson
Behavior of lower and higher organisms leading up to man. 2 lec., 3 lab. (1st sem., yearly.)
- 332. ABNORMAL PSYCHOLOGY** (3) Koons, staff
Man's mental deviations from the normal; theory, application, and limitations of psychoanalysis; methods of studying abnormal mental processes, especially psychosis. Clinics at hospitals. 2 lec., 1 lab. Prereq., 9 hrs., or 6 hrs. and 6 hrs. zoology. (2nd sem., yearly.)
- 333. PSYCHOLOGY OF PERSONALITY** (3) Koons, Russell
The origins, development, and organization of personality. (1st sem., yearly.)
- 336. SOCIAL PSYCHOLOGY** (3) Bruning, Paulsen
The behavior of man as influenced by group membership, with emphasis on the individual's interaction as a basis of change of motives, attitudes, and personality. (2nd sem., yearly.)
- 351. INTRODUCTION TO CLINICAL AND COUNSELING PSYCHOLOGY** (3) Staff
Diagnostic and remedial procedures and resources; professional problems, duties, and skills, and interprofessional relationships. Prereq., 332 or 333 or 336, or an A or B grade in 1 or 101. (1st sem.)
- 361. SEMINAR IN PSYCHOLOGICAL PROBLEMS IN INDUSTRY** (3) Klare, Uhrbrock, staff
Problems of selection, placement, motivation, development, and evaluation of employees, with emphasis on job analysis, interviewing, testing, rating and attitude evaluation as related to worker satisfaction, fatigue, and productivity. (1st sem., yearly.)
- 373. DEVELOPMENTAL PSYCHOLOGY** (3) Koenigsberg
An advanced review of fundamental principles and research covering the development of human behavior. (1st sem., yearly.)
- 375. PSYCHOLOGY OF EXCEPTIONAL CHILDREN** (3) Staff
The growth and development of nontypical children. (Each sem.)

376. PROGRAMMED LEARNING AND TEACHING MACHINES

(3) Klare, staff

Use of programs and machines; principles and procedures in preparing programs; writing of objectives and frames for a trial program. Prereq., a course in learning. (1st sem. yearly.)

390. MINOR PROBLEMS IN PSYCHOLOGY

(1 to 3) Staff

Training in the scientific study of some problem of special interest to the student. Independent work emphasized. Maximum credit in course, 6 hrs. (Each sem.)

403. LEARNING THEORY

(3) Anderson

Lectures and readings covering theoretical works in the field of learning. Prereq., 303. (2nd sem., yearly.)

411. PERCEPTION

(3) Staff

The psychological principles of perception involving the study of impersonal (time, space, motion) and personal (social) phenomena. Prereq., 15 hrs. (2nd sem., alternate years.)

417. HISTORY OF PSYCHOLOGY

(3) Staff

Prereq., 9 hrs. (1st sem., yearly.)

418. SYSTEMS OF PSYCHOLOGY

(3) Staff

A critical analysis and comparison of modern and contemporary psychological theory. Prereq., 15 hrs. (2nd sem., yearly.)

421. INTERMEDIATE STATISTICS FOR THE BEHAVIORAL SCIENCES

(4) Games

The process of statistical inference, and the most commonly used tests of hypotheses involving the normal curve and the *t*, chi-square, and *F* distributions. Correlation and linear regression. 4 lec., 1 lab. (1st sem., yearly.)

422. DESIGN AND ANALYSIS OF EXPERIMENTS

(3) Games

Analysis of variance techniques and considerations in the design and analysis of experiments; trend analysis; covariance; multiple comparisons. 3 lec., 1 lab. Prereq., 421. (2nd sem., alternate years.)

424. ADVANCED PRINCIPLES OF TESTS AND MEASUREMENTS

(3) Games

Test theory, item analysis, reliability analysis, cross validation, and an introduction to factor analysis. Statistical considerations of constructing, using, and interpreting tests. Prereq., Psych. 421, Ed. 382. (2nd sem., alternate years.)

426. ADVANCED EXPERIMENTAL PSYCHOLOGY

(4) Staff

Study of experimental design and techniques. Students will carry out individual experiments. Prereq., 421. (2nd sem., yearly.)

433. THEORIES OF PERSONALITY

(3) Staff

Prereq., 333, 336. (2nd sem., yearly.)

436. ADVANCED SOCIAL PSYCHOLOGY

(3) Staff

A summary of the main theoretical and substantive trends in contemporary social psychology, with emphasis upon the role of small group theory and research. Prereq., 336. (2nd sem., yearly.)

437. BEHAVIOR DISORDERS I

(3) Koons, staff

An empirical approach to the dynamics of behavior disorders. The integration and application of motivational, emotional, perceptual, and learning principles to maladjustments, including psychoneurosis. Prereq., 332 or equivalent. (1st sem., yearly.)

438. BEHAVIOR DISORDERS II (3) Staff
An intensive approach, stressing current literature, to the problems of psychopathology, including organic, psychotic, psychoneurotic, and personality disorders, and mental deficiency. Prereq., 437. (2nd sem., yearly.)
441. BEHAVIORAL MEASUREMENT (2) Games
Theory of testing and measurement; basic criteria including objectivity, reliability, validity. Methods of test construction and validation, including questionnaire construction. An introduction to factor analysis. Prereq., 421 or Educ. 381 or equiv.; required of graduates who have not had 142. (2nd sem., yearly.)
442. INDIVIDUAL INTELLIGENCE TESTING (3) Pullen
The theory, methods, practice, and results of intelligence tests. 2 lec. 1 lab. Prereq., 142 or 441. (Each sem. and summer.)
443. ASSESSMENT I — INTRODUCTION (3) Koons, Pullen
An intensive survey of clinical methods: interviewing, report writing, inter-professional relationships, interpretation of commonly used individual and group assessment methods, and a general introduction to the theory of projective testing. Prereq., 442. (2nd sem., yearly.)
444. ASSESSMENT II— ADVANCED INDIVIDUAL TESTING (3) Koons
The theory, methods, and introduction to the interpretation of projective testing. Prereq., 443 and 451 or 437. (1st sem., yearly.)
445. ASSESSMENT III — INTEGRATION (3) Koons
Advanced interpretation of projective and other diagnostic tests and the integration of test findings into a dynamic conceptualization of the individual. Prereq., 444. (2nd sem., yearly.)
446. PRACTICUM IN PSYCHOLOGICAL ASSESSMENT (3 to 6) Koons, staff
Experience with psychological measuring devices, especially projective techniques. Prereq., 443 (or concurrently). (Each sem.)
451. PERSONNEL AND VOCATIONAL COUNSELING I (3) Klare, Russell
Techniques useful in considering personnel and vocational problems in industrial, commercial, and school work. Prereq., 141 or 441. (1st sem., yearly.)
452. PERSONNEL AND VOCATIONAL COUNSELING II (3) Paulsen, Russell
Consideration of the dynamics of vocational choice and adjustment, theory of interests, occupational information, job classification, uses of community resources, etc., as applied to counseling and personnel work. Prereq., 451 and 332 or 437. (2nd sem., yearly.)
453. COUNSELING AND PSYCHOTHERAPY I (3) Pullen, Snyder, staff
Analysis of theory and practice in counseling and psychotherapy. Prereq., 437. (1st sem., yearly.)
454. COUNSELING AND PSYCHOTHERAPY II (3) Snyder, staff
Theory and practice in counseling and psychotherapy with personal adjustment cases. Prereq., 443, 453. (2nd sem., yearly.)
455. PRACTICUM IN COUNSELING AND PSYCHOTHERAPY (3) Pullen, Snyder
Supervised experience in assessment, counseling, and psychotherapy. A pre- or co-requisite to the clinical internship; may be repeated for maximum credit of 6 hrs. Prereq., 454 or concurrently. (Each sem.)

456. PRACTICUM IN PERSONNEL AND VOCATIONAL COUNSELING

(3) Russell

Experience in personnel and vocational counseling. The work will include the handling of counseling cases. Prereq., 451 and 332, or 437, Ed. 362 recommended. (2nd sem., yearly.)

491. RESEARCH IN PSYCHOLOGY

(1 to 6) Staff

Prereq., permission.

494. ADVANCED SEMINAR IN PSYCHOLOGY

(1 or 2) Staff

Maximum credit in course, 4 hrs. Prereq., permission. (2nd sem., yearly.)

495. THESIS OR DISSERTATION

(As recommended by dept.) Staff

Prereq., permission.

RADIO-TELEVISION—See Dramatic Art and Speech**RUSSIAN—See Modern Languages****SCULPTURE—See Art****SOCIOLOGY AND ANTHROPOLOGY**Professor Harlan
(chairman)Assistant Professors Horning, Kwan, Worstell
Instructors Babics, Webb

A graduate major in sociology offers preparation for teaching, research, and advanced graduate training. Undergraduate preparation should include 10 semester hours in sociology, at least 12 hours in other behavioral sciences, and a course in statistics. Graduate requirements are: 24 to 26 semester hours in sociology, including 4 hours devoted to the preparation of a thesis, and a minor of 6 to 8 hours in a related field. All graduate majors must register for 301 or 381 and 303 or 491 for a minimum of 4 credit hours. The prerequisite for beginning a graduate minor is 6 undergraduate credits in sociology.

301. SOCIAL RESEARCH METHODS

(2) Staff

Analysis of the research process in terms of problem definition, experimental design, field techniques, and methods of data analysis. (1st sem., 1964-65.)

303. SOCIOLOGICAL THEORY

(2) Staff

Historical development of sociology; major European and American contributors; recent trends and the status of specialized fields of interest. (1st sem., yearly.)

311. CRIMINOLOGY AND PENOLOGY

(3) Staff

Causal factors in criminal behavior; typology of offenders; crime statistics; criminal codes, formal and informal prison social systems; treatment techniques and facilities. Field trips. (1st sem., yearly.)

315. FOLK COMMUNITIES

(3) Staff

Comparative study of primary village communities; peasantry as a historical phenomenon; the folk community as an embodiment of civilization in Europe, India, and the Far East. (1st sem., yearly.)

316. CULTURE AND CIVILIZATION

(3) Staff

Analysis of the concept "civilization" and of the transformation of social life which it represents. Social institutions and change in selected civilizations outside the main course of Western history. (2nd sem., yearly.)

318. WORLD POPULATION TRENDS

(3) Kwan

Differential rates of growth in various countries; technological, health, economic, and political problems; current national and international policies and programs. (2nd sem., yearly.)

320. SOCIOLOGY OF ORGANIZATION

(3) Horning

Study of the work plant as a social system, with emphasis upon work-group relationships and behavior; the meaning and organization of work, managerial functions, and the structure of trade unions. (1st sem., yearly.)

321. CONTEMPORARY SOCIAL MOVEMENTS

(3) Harlan

Organized movements resulting in major social changes; revolutionary, nationalistic, reform, religious, and fashion movements; leaders, ideologies, tactics; case studies of typical movements. (2nd sem., yearly.)

322. JUVENILE DELINQUENCY

(3) Staff

Factors associated with delinquency; characteristics of delinquents; juvenile courts and clinics; probation, correctional training; delinquency prevention. Field trips. (2nd sem., yearly.)

325. PERSONALITY AND SOCIETY

(3) Harlan

Analysis of personality development in relation to cultural differences and social class position; human nature, feeling, motivation, social perception; problem-solving and reference-group behavior in successive life-stages. (2nd sem., yearly.)

330. SOCIAL GROUP WORK

(2) Worstell

Descriptive study of the methods and basic concepts of social group work practice. Students participate in or lead a group. (2nd sem., 1964-65.)

334. SOCIAL STRATIFICATION

(3) Staff

Caste, estate, and class systems, and their relation to occupation, life-expectancy, health, mental disorder, education, political interests, etc.; factors in social mobility. (2nd sem., 1964-65.)

336. PUBLIC OPINION AND MASS COMMUNICATIONS

(3) Harlan

Attitude and opinion formation in relation to the decision-making processes; methods in the study of public opinion; organization and control of mass media, and the functions of media content; techniques and effects of propaganda. (2nd sem., yearly.)

339. SOCIAL WORK

(3) Worstell

Descriptive study of the practice of social case work and of some of the basic concepts. Selected case records are used. (Each sem.)

341. FIELD AND AGENCY EXPERIENCE

(2) Worstell

Assignment to a welfare or correctional agency for observation and limited work experience. Agency supervision, regular conferences with instructor. Two afternoons each week. Maximum credit in course, 4 hrs. (Each sem.)

345. SMALL GROUP ANALYSIS (2) Harlan

Theory of small group interaction, communication, role definition, and leadership; group structure and function in various organizational contexts; emphasis upon current research. (2nd sem., 1964-65.)

350. TOPICAL SEMINARS (2) Staff

Selected topics in the following areas; given in sequence in a two-year cycle; (a) Deviant Behavior—Staff; (b) Sociology of Conflict—Kwan; (c) Occupations and Professions—Horning; (d) Cultural Change—Staff. Maximum credit in course, 4 hrs.

381. RESEARCH PROBLEMS IN SOCIOLOGY (2) Staff

Individual research coordinated with other student or faculty projects. Maximum credit in course, 6 hrs. (Each sem.)

491. GRADUATE SEMINARS (2) Staff

Offered in sequence in a two-year cycle in the following areas: (a) Social Organization, (b) Social Psychology, (c) Collective Behavior, (d) Population and Community Structure. Maximum credit in course, 6 hrs.

495. THESIS (1 to 6) Staff

Prereq., 301, 381, or equivalents, and permission.

SPANISH—See Modern Languages**SPEECH AND HEARING THERAPY—See Dramatic Art and Speech****STATISTICS (Minor only)**

Professor Soltow (chairman)

A graduate major in statistics is not available. A minor may be developed in this area of study. To begin work in statistics, the student must have completed basic courses satisfactory to the department.

303. STATISTICAL QUALITY CONTROL (3) Staff

The application of sampling theory to industrial operations. A course in industrial statistics especially recommended for students interested in production control.

310. INTERMEDIATE (3) Staff

Techniques of small sample tests applied in marketing and opinion polling, statistical quality control, economics, and government statistics.

341. BUSINESS CYCLES (3) Staff

A study of the nature, causes, and theory of the business cycle together with a survey of techniques of description and control.

345. FORECASTING (3) Staff

The theory of prediction of social data and the theory of business forecasting with special reference to economic conditions and the business cycle.

350. RECENT TRENDS IN STATISTICAL TECHNIQUES (3) Staff

Applications to business and economics including input-output tables, quantified economic models, linear programming, and decision making.

381. RESEARCH IN BUSINESS STATISTICS (1 to 8) Staff
Prereq., permission.
391. SEMINAR IN BUSINESS STATISTICS (2 to 4) Staff
Maximum credit in course, 10 hrs. Prereq., permission.

ZOOLOGY

Professors Elliott, Frey, Seibert (chairman), Stehr
Associate Professors Lawrence, McQuate,
W. Peterson, Vallowe
Assistant Professors Harclerode, Heck,
Huling, Maier, Wilson

For a graduate major in zoology the student will usually be expected to have completed at least 18 hours of approved subjects in zoology or in related fields approved by the department.

For a graduate minor a student will usually be expected to have completed a minimum of 10 hours in zoology or in related fields approved by the department.

301. COMPARATIVE VERTEBRATE ANATOMY—MAMMALIAN (4) Elliott
The anatomy of mammals with particular emphasis on the cat. 2 lec., 4 lab. (1st sem., yearly.)

302. VERTEBRATE EMBRYOLOGY (4) Peterson
All phases of vertebrate development are considered, and particular emphasis in laboratory is given to the chick and pig. 2 lec., 6 lab. (2nd sem., yearly.)

304. HISTOLOGY (4) Heck
A study of the fundamental body tissues of vertebrates followed by a study of the histology of the various body systems. 2 lec., 4 lab. (2nd sem., yearly.)

305. PRINCIPLES OF PHYSIOLOGY (4) Wilson
A comparative study of regulatory systems in organisms and their relation to chemical and physical events in cells and solutions. 2 lec., 6 lab. Organic chemistry valuable. (1st sem., yearly.)

306. CELLULAR PHYSIOLOGY (4) Wilson
A study of chemistry and structure as related to various functional activities; methods for cell studies. 3 lec., 3 lab. Prereq., 305. (2nd sem., yearly.)

307. PRINCIPLES OF ENDOCRINOLOGY (4) Vallowe
A study of the organs of internal secretion from the standpoint of their phylogeny, embryology, micro-anatomy and physiology. 2 lec., 4 lab. Prereq., 305. (Given upon sufficient demand.)

308. ADVANCED GENETICS (Same as Bot. 308.) (3) Cohn, McQuate
Gene action and fine structure; biochemical, microbial, and radiation genetics; cytoplasmic inheritance. 3 lec. (2nd sem., 1964-65.)

309. BIOLOGICAL CHEMISTRY (4) Wilson
Metabolism of carbohydrates, proteins, and fats; principles of enzyme action; chemistry and tests for biological compounds. 2 lec., 4 lab. Prereq., organic chemistry. (2nd sem., yearly.)

310. RADIATION BIOLOGY (Same as Bot. 310.) (4) Harclerode, Larson

A study of the techniques of the use, detection and interpretation of radioactive tracers in biological problems and the effects of some radiations on living tissue. 2 lec., 4 lab. Prereq., in Botany: Courses through Plant Physiology; in Zoology: 305. (2nd Sem., 1965-66.)

311. GENERAL BACTERIOLOGY (4) Maier

A study of the structure, classification, and relationships of bacteria; preparation of cultures, staining, and biochemical reactions. Not open for graduate credit to majors in bacteriology. 2 lec., 4 lab. Prereq., organic chemistry. (Each sem.)

312. PATHOGENIC BACTERIOLOGY (4) Lawrence

Microorganisms in relation to diseases. A study of disease manifestations, methods of transmission, means of protection, and immunity. 2 lec., 4 lab. Prereq., 311. (1st sem., yearly.)

314. MICROBIOLOGICAL TECHNICS (2) Lawrence, Maier

A practical course designed to give the student extensive experience in the use of bacteriological technics and equipment. 4 lab. Prereq., 311. (1st sem., yearly.)

316. ANIMAL PARASITES (4) Heck

Parasites in relation to human disease. Parasites infesting man, their life histories, the diseases they produce, and means of prevention. 2 lec., 4 lab., Prereq., permission. (2nd sem., yearly.)

317. ADVANCED GENERAL BACTERIOLOGY (4) Lawrence

Bacteria as living systems. Subjects considered will include: growth requirements, enzyme systems, intermediary and end products formed, influence of environmental factors and bacterial taxonomy. 2 lec., 4 lab. Prereq., 311. (2nd sem., 1964-65.)

320. ADVANCED ENTOMOLOGY (4) Stehr

Insect morphology and the principles of insect classification and identification, with emphasis on the more extensive orders. 2 lec., 4 lab. (2nd sem., 1964-65.)

323. PROTOZOOLOGY (4) Peterson

Life histories, physiology and relationships of representatives from all major groups of protozoa. 2 lec., 4 lab. (Given upon sufficient demand.)

325-326. INVERTEBRATE ZOOLOGY (4-4) Huling

Structure, relationships, and life histories of representative members of the various invertebrate phyla, together with related general principles. 2 lec., 4 lab. Prereq., permission. (1965-66.)

327. ANIMAL ECOLOGY (4) Seibert

A study of the effect of environment on animals; the role of temperature, moisture, gases, photoperiod, metabolism, osmotic regulation on ecological distribution; physiological and structural adaptations. Experimental methods in field and laboratory. 2 lec., 4 lab. or field work. (1st sem., 1965-66.)

331. EVOLUTION (2) Seibert

The evidence for, and current ideas and research on, the mechanisms of organic evolution. (Given upon sufficient demand.)

335. GENERAL BIOCHEMISTRY

(3) McQuate

The structure, properties, and metabolic significance of the important constituents of living matter. 3 lec. Prereq., 305. (1st sem., yearly.)

336. GENERAL BIOCHEMISTRY LABORATORY

(2) McQuate

A laboratory course to accompany Zool. 335. 6 lab., Prereq., 335 or with 335. (1st sem., yearly.)

343. BIOLOGICAL STUDIES (1 to 4 a semester in any of the following areas)

Semi-independent studies under the guidance of the instructor. Maximum credit in any one area, 8 hrs. Prereq., permission.

- a. *Bacteriology*—studies in water, dairy, and pathogenic bacteriology; serology and advanced technic. Lawrence, Maier.
- b. *Ecology*—field and laboratory studies of the relation between animals and their surroundings. Seibert, Stehr.
- c. *Entomology*—classification, structure, life histories, and economic aspects of insects. Stehr.
- d. *Genetics*—breeding experiments and library work in the field of heredity. McQuate.
- e. *Invertebrate Zoology*—classification, structure, embryology, and life history of invertebrates. Huling, Peterson, Siehr.
- f. *Parasitology*—animal parasites. Heck, Peterson.
- g. *Physiological Zoology*—physiological and related experimental studies. Harclerode, Vallowe, Wilson.
- h. *Readings in Biology*—readings dealing with biological history, theory and advances. Stehr.
- i. *Technicians' Methods*—technic and theory of blood, urine, gastric analysis, fecal examination, and serological methods. Lawrence, Maier.
- j. *Vertebrate Anatomy*—gross and microscopic anatomy, embryology, histological technic. Elliott, Peterson.
- k. *Vertebrate Zoology*—classification, life history studies. Seibert, Vallowe.

382. ADVANCED TOPICS

(1 to 4) Staff

Specialized topics not otherwise available to advanced students. Prereq., permission.

- a. Biochemistry of Reproductive Hormones. Vallowe.
- b. Radiation Physiology. Harclerode.

391. SEMINAR IN ZOOLOGY

(1) Staff

Presentation of research or readings in current literature. Required. Prereq., permission. (Each sem.)

413. BACTERIOLOGICAL REVIEW

(2) Frey, Lawrence, Maier

An advanced theoretical course in bacteriology. Prereq., permission. (Given upon sufficient demand.)

415. PHYSIOLOGICAL REVIEWS

(2) Wilson

An advanced lecture and conference course, involving literature review in various specialized phases of physiology and biological chemistry. Prereq., permission. (Given upon sufficient demand.)

485. RESEARCH IN BIOLOGY

(1 to 4) Staff

Research work in all areas listed under 343. This course fulfills the thesis requirement. Maximum credit in course, 4 hrs. Prereq., permission.

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John George Smith



Volume LXI

November, 1964

Number 6



**OHIO
UNIVERSITY
BULLETIN
ATHENS, OHIO**

THE GRADUATE COLLEGE

1964

**FOR USE WITH THE 1964-1966
GRADUATE COLLEGE BULLETIN**

This bulletin is for use with the 1964-1966 Bulletin of the Graduate College of Ohio University during the 1965-1966 academic year. Reference is made to the pages of the 1964-1966 Graduate Bulletin that are affected by the information contained in this bulletin.



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Vol. LXI

November, 1964

Number 6

Published by Ohio University, Athens, Ohio, in January (twice), March, April, August, and November. Entered as second-class matter at the post office at Athens, Ohio, under Act of August 24, 1912.

SUPPLEMENT TO THE 1964-1966 GRADUATE BULLETIN

Page 3. Associate Dean of the Graduate College is Taylor Culbert, replacing Paul R. Murphy.

Page 21. ADMISSIONS

The applicant is advised of the desirability of submitting scores on the aptitude test of the Graduate Record Examination for admission to graduate study at the master's level, and on the advanced test for admission to post-master's study.

Page 22. SENIORS AND GRADUATE STUDY. A student who is within 9 hours of completing all requirements for the bachelor's degree at Ohio University may take courses applying toward the master's degree, provided he otherwise meets the requirements of admission and secures the written recommendation of the dean of his college, the chairman of his major department, and the approval of the Dean of the Graduate College. This privilege may also be extended to well qualified seniors of other colleges who have 9 or fewer semester hours to complete for their baccalaureate degree. Request for the above privilege must be made *in advance of registration* through the Graduate College office.

Page 24. THE MASTER'S DEGREE (begins on p. 23)

The student seeking a master's degree under either the thesis or the nonthesis plan must be officially registered for at least one (1) semester hour of credit for thesis or seminar in the session in which he receives his degree. The adviser may recommend that registration be for more than the stipulated one hour.

Page 26. MASTER'S ORAL THESIS EXAMINATION

A representative from the Graduate Council need not be added to the committee conducting this examination. Arrangements for the examination must be cleared through the Graduate College office.

Page 28. THE DOCTOR OF PHILOSOPHY DEGREE (begins on p. 27)

Language Requirement. Prior to admission to candidacy . . . (this paragraph as is)

Language courses numbered 401 and 402 will be designed to provide the candidate with a reading knowledge in a language. Before a student may enter the 401 level course he must have had one year of college level language or the equivalent. In order to determine his preparation for entering the 401 course, he will be given an examination to demonstrate his proficiency. He may be required to take a lower level course before entering 401. Completion of 402 with a grade of B or better will be considered as having passed the Ph.D. qualifying examination in that particular language.

The language and statistics proficiency examinations . . . (this paragraph as is)

Page 29. DISSERTATION.

A dissertation which is the . . . (this paragraph as is) (Add to end of paragraph): The student expecting to receive the Ph.D. degree must be registered for at least two (2) semester hours of dissertation in the session in which he receives his degree. The adviser may recommend that registration be for more than the stipulated two hours.

Page 30. The catalog number series 500-599 is added. Dissertation will henceforth be numbered 595. Thesis will continue to be numbered 495.

Areas listing Dissertation which will now carry the 595 number are Administration of Personnel in Education, Chemistry, Education, English, Fine Arts, Guidance-Counseling, Physics, Psychology, Public Address, Radio-Television, Speech and Hearing Therapy, and Student Personnel Services in Higher Education.

Page 53. DOCTORAL PROGRAMS IN EDUCATION

Add: Administration of Personnel in Education

Page 53. PROFESSIONAL COMPETENCE PROGRAMS

Add: Administration of Personnel in Education

COURSES OF INSTRUCTION

ADDITIONS, REVISIONS, DELETIONS

As of November 1, 1964

ARCHITECTURE

375, 377. changed to 375-376 NINETEENTH AND TWENTIETH CENTURY
ARCHITECTURE (3-3) Everett Revision

ART

371-372. ADVANCED INTERIOR DESIGN (3-3) W. Moran Addition

CHEMISTRY

442. (also Zool. 442) ADVANCED BIOCHEMISTRY (3) Staff Addition

DRAMATIC ART

359. TITLE CHANGED TO STYLES OF ACTING (3) Conover Revision

ECONOMICS

378. ECONOMICS OF THE SOVIET UNION (3) Bogar Addition

EDUCATION

305. MODERN ELEMENTARY MATH. CURRICULUM (3) Addition

456. Correct number for course is 444 (see page 59)

467, 468. Change to 567, 568.

ELECTRICAL ENGINEERING

323. ELECTROMAGNETIC PHENOMENA AND DEVICES II (3) Huff, McFarland Addition

324. RADAR SYSTEMS (3) McFarland Addition

334. CONTROL THEORY (3) Miro Addition

337. INTRODUCTION TO PLASMA DYNAMICS (3) Fahey Addition

362. DIGITAL SYSTEMS (3) Miro, Niesse, Smith Revision

370. FOUNDATIONS OF ELECTRICAL NETWORK THEORY (3) Chen Addition

430. SYSTEMS THEORY (3) Miro Addition

436. ADVANCED ELECTROMAGNETIC FIELD THEORY (3) McFarland, Smith Addition

437-438. ADVANCED PLASMA DYNAMICS (3-3) Fahey Addition

451. OPTIMIZATION OF ELECTRICAL ENGINEERING SYSTEMS (3) Smith Addition

| | |
|--|--------------------------------|
| 452. DIGITAL AND SAMPLE DATA CONTROL | (3) Miro Addition |
| 453. CONTROL SEMINAR | (6 to 9) Gamble, Miro Addition |
| 454. NON-LINEAR CONTROL | (3) Gamble, Miro Addition |
| 461. LOGICAL DESIGN OF DIGITAL COMPUTERS | (3) Smith Addition |
| 462. ADVANCED DIGITAL CIRCUITS | (3) Smith Addition |
| 463. ADVANCED LOGICAL DESIGN | (3) Miro Addition |
| 470. LINEAR NETWORK THEORY | (3) Chen Addition |
| 472. NETWORK TOPOLOGY | (3) Chen Addition |

DEPARTMENT OF ENGLISH: LANGUAGE AND LITERATURE Revisions and Additions

I. LITERATURE

Any candidate for the Master of Arts degree in English who has successfully completed the first two years of French, German, Russian, Italian, Spanish, Latin or Greek at the college level will be considered to have satisfied the departmental language requirement.

Any candidate who has not so satisfied the requirements must before receiving the degree demonstrate his ability to read either French or German by either:

a. passing a departmental reading examination in one of the two languages

or

b. passing two semesters of the graduate reading course in one of the two, it being understood that the course carries no credit toward graduation.

Students will include in their M.A. Program at least one course from each of the following groups:

GROUP I

- 402. ENGLISH LANGUAGE I
- 403. ENGLISH LANGUAGE II
- 405. OLD ENGLISH
- 406. OLD ENGLISH POETRY
- 412. CHAUCER
- 450-451. PROSEMINAR
- 469a. STUDIES IN MEDIEVAL LITERATURE

GROUP II

- 424. SHAKESPEARE
- 432. MILTON
- 450-451. PROSEMINAR
- 469b. STUDIES IN RENAISSANCE LITERATURE

GROUP III

450-451. PROSEMINAR

469c. STUDIES IN NEO-CLASSICAL LITERATURE

GROUP IV

450-451. PROSEMINAR

469d. STUDIES IN NINETEENTH CENTURY LITERATURE (Romantic, Victorian)

GROUP V

450-451. PROSEMINAR

469f. STUDIES IN AMERICAN LITERATURE

GROUP VI

450-451. PROSEMINAR

469e. STUDIES IN MODERN LITERATURE

469g. STUDIES IN CRITICISM

473. STYLISTICS

475. THEORY OF LITERATURE

481. PROBLEMS IN RESEARCH

482. PROBLEMS IN RESEARCH

DOCTORAL APPLICANCY

After receipt of the masters degree, the student may advance to the stage of "doctoral applicant." He will remain an applicant until he has fulfilled the following requirements. He must complete:

1. His foreign language requirements as described by the Graduate College.
2. Six hours in the English Language (English 405, Introduction to Old English, and English 402, English Language I).
3. At least one seminar, English 570, in his area of concentration.
4. The minor: the applicant may (a) choose to follow a strong minor (9 hours) in another department and make appropriate adjustments in his work in English, or he may (b) elect to submit a minor in Old English literature and the English language (i.e., 406, Old English Poetry, and 403, English Language II, in addition to #2 above), or he may (c) submit a minor in another literature by passing the Ph.D. language examination and taking 6 hours of graduate course work in the literature of that language.
5. Other course work as called for by his program of study.
6. The examination described below.
7. A satisfactory prospectus for his dissertation.

EXAMINATION

When, in the judgment of the adviser, the student is ready to take his examination in his area of concentration, the adviser will recommend to the English Department Graduate Committee an appropriate committee, consisting of himself and three other faculty

members, which will serve as the examining group for the student and as his dissertation committee. The Graduate Committee will consider the recommendation of the adviser in appointing the examining and dissertation committee.

Under the direction of the adviser, who will become chairman of that particular examining and dissertation committee, an examination will be prepared for that student. The written portion of the examination (a maximum of 8 hours) will be given first. It will be followed, after it has been read by the examining committee (normally a week or so later), by an oral examination of whatever length is deemed appropriate. The examining committee will pass or fail the student on the basis of his total performance on the entire examination (i.e., the written and oral portions are parts of one exam, not two separate exams).

The examination, both the oral and the written parts, will deal with the student's immediate area of concentration and with relevant literature preceding and following. The examination committee will inform the student of the areas over which he will be examined and of the nature and scope of his examination.

The student may be expected (1) to demonstrate specialized knowledge of the literary works of his immediate area of concentration in their historical, intellectual, and cultural contexts, and (2) to relate those works to works in relevant areas preceding and following, emphasizing especially the varying concepts of the nature and use of literature which individualize thematic and stylistic practices of differing literary movements.

DOCTORAL CANDIDACY

In this final phase of his work, the candidate will complete his dissertation. The committee recommends that the dissertation be kept within a 150 page limit whenever possible.

In lieu of the traditional oral examination the candidate will deliver a 60-minute public lecture on some aspect of his dissertation and will lead a discussion upon his work.

* * * * *

NOTE. With the exception of English 315, 316 (applicable to linguistics program only), English 369, 370 (restricted to selected advanced undergraduates and graduates), and English 393, 394 (creative writing seminar) graduate students will be expected to take courses numbered 400 or above.

See regular catalogue for course description of:

- 369-370. COLLOQUIUM
- 393-394. CREATIVE WRITING SEMINAR
- 402-403. ENGLISH LANGUAGE
- 405-406. OLD ENGLISH, OLD ENGLISH POETRY
- 412. CHAUCER
- 424. SHAKESPEARE
- 432. MILTON
- 450-451. PROSEMINAR
- 473. STYLISTICS
- 475. THEORY OF LITERATURE
- 481-482. PROBLEMS IN RESEARCH
- 469. STUDIES IN LITERATURE

Advanced study of a period or of some aspect of a period (a movement, a genre, an author, etc.) of English or American Literature. These subject matter courses are designed to supplement undergraduate training and to provide intensified training in areas of concentration. The following will be scheduled regularly:

| | | |
|---------------------------|--------------|---|
| a. Medieval | Spring | (3) Butterworth, Roe |
| b. Renaissance | Fall | (3) Fiebler, McDonnell, Swardson, Whan |
| c. Neo-classic | Fall | (3) Jones, Purdum, Shipley |
| d. Romantic and Victorian | Fall, Spring | (3) King, Kramer, Rogers, J. Thompson |
| e. Twentieth Century | Fall, Spring | (3) Summers, E. Thompson, Wells |
| f. American | Fall, Spring | (3) Holmes, Marks, Stone, Wells |
| g. Criticism | Fall | (3) E. Thompson |

491-492. MASTERS SEMINAR

(1-1) Jones

Problems in the teaching of college English. (Yearly.)

495. THESIS

Staff

The masters thesis is generally elected for four hours credit.

570. SEMINAR

Study of a period of English or American literature with emphasis on scholarship, bibliography, and research methodology. To include preparation and class presentation of long research/critical paper. Each student will take a seminar in the period in which he plans to write his dissertation. The following will be regularly scheduled:

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| a. Medieval | (3) |
| b. Renaissance | (3) |
| c. Neo-classic | (3) |
| d. Romantic and Victorian | (3) |
| e. Twentieth Century | (3) |
| f. American | (3) |

595. DISSERTATION

(Credit as recommended by Dept.) Staff

The doctoral dissertation may be elected for as many hours credit as required.

II. LINGUISTICS

The linguistics program is designed to offer the M.A. and Ph.D. degrees with majors in linguistics, and an M.A. degree with a major in the teaching of English as a Foreign Language.

A. THE MASTERS PROGRAM

A candidate may work for the M.A. degree with a major in any one of the three following areas: linguistics theory, general linguistics, teaching English as a foreign language. The general requirements for each of these majors are included below.

LINGUISTICS THEORY

In order to receive a major in this area, the candidate must complete 27 hours of linguistic theory course work, covering phonetics, phonemics, morphology, syntax, transcribing, historical linguistics, comparative linguistics, language typology, computational linguistics,

and psycholinguistics. In addition to the required course work, the candidate must write a Master's thesis, upon completion of which he will receive 3 hours of credit. The candidate must also demonstrate his reading proficiency in one foreign language, and pass the Master's Qualifying Examination.

GENERAL LINGUISTICS

The requirements for a major in this area are the same as those for a major in linguistics theory, with the following exception—a candidate is only required to take 18 hours of work in specified theory courses. He must then take 9 hours of course work in any one of the following fields for a minor: The English Language, Teaching English as a Foreign Language, Speech, Psychology, Computational Linguistics, Sociology, Philology, Descriptive Linguistics. The student must select his 9 hours of course work in his minor field from a prescribed group of interrelated courses.

TEACHING ENGLISH AS A FOREIGN LANGUAGE

In order to receive a major in Teaching English as a Foreign Language a candidate must complete a total of 25 hours of prescribed courses in the Teaching of English as a Foreign Language and the English language. Beyond these 25 hours, the student may select an additional 3 hours of work in linguistics theory. The requirements for a thesis, and proficiency in a foreign language are the same as those for the major in linguistics theory.

B. THE DOCTORAL PROGRAM

Admission. In order to apply for the Ph.D. program an applicant must have satisfied the requirements for an M.A. (major in linguistics theory). Applicants who hold M.A. or M.S. degrees with a major in related disciplines, may submit their graduate course records for evaluation by the Committee on Linguistics. In exceptional cases it may be possible for the holder of an A.B. degree to apply directly to the Ph.D. program. Such an applicant would have to have an extremely good undergraduate record, with a major in linguistics, or a closely related discipline.

Applicants who hold an M.A. must submit letters of recommendation from at least two members of their thesis committee. Exceptional applicants who hold the A.B. degree must submit letters of recommendation from the chairman of their major department, and two professors with whom they took work in their major or minor field.

Requirements. A candidate who enters the doctoral program must:

1. Complete 70 hours of course work, 42 of which must be taken in prescribed linguistics courses (30 credit hours will be given for an M.A. in linguistics theory). In addition to the prescribed courses, the student must take 28 hours in a combination of two or three minors in the following areas: The English Language, Teaching English as a Foreign Language, Speech, Computational Linguistics, Psychology, Sociology, Philology, Descriptive Linguistics. A student must have a minimum of 9 hours in any given minor field.
2. Meet the Graduate School's Reading Proficiency requirements in two foreign languages.
3. Pass the Ph.D. qualifying examinations.

In order to receive the Ph.D. degree, the candidate must write a dissertation (for which he will receive a maximum of 20 credit hours) and present the major aspects and results of his dissertation before the Ethnolinguistics Seminar (a public lecture).

SPECIAL NOTE ON COURSES

The course of study includes more than twenty courses concerning all areas of linguistic study. For a complete list of these courses write to the Chairman of the English Department (Professor Edgar Whan) or the Chairman of the Committee on Linguistics (Professor James L. Wilson).

FINANCE

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| 314. RISK AND INSURANCE | (3) Bobbitt Addition |
| 491. SEMINAR | (2 to 4) Staff Addition |

HISTORY

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| 364. GREAT BRITAIN SINCE 1815 | (3) Richter Addition |
| 369. EUROPE FROM 1870 TO 1919 | (3) Whealey Addition |
| 381. HISTORY OF INTERNATIONAL COMMUNISM | (3) Hahn Addition |
| 386. PRE-COLONIAL AFRICA | (3) Booth Addition |
| 492. PROBLEMS IN AMERICAN HISTORY | (2 or 3) Staff Addition |

MODERN LANGUAGE

- 401, 402. French, German or Spanish for Graduate Reading Requirement changed from (0,0) to (3,3). (Credit does not apply toward degree requirements.)

PHOTOGRAPHY

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| 496. STUDIO THESIS | (1 or 2) Staff Addition |
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PHYSICAL EDUCATION

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| 352 changed to 452. PHYSICAL DIAGNOSIS | Revision |
| 396 changed to 406. PROBLEMS OF INTERSCHOOL ATHLETICS | Revision |

PHYSICS

The following courses are recommended to all students in the first two years of graduate study: 404, 405-406, 407-408, 419-420, four hours of advanced laboratory, one hour of 413, 414, and the courses given in the Mathematics Department on advanced calculus, modern algebra and special functions. All graduate students in residence are required to attend the weekly colloquium.

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| 404. THERMOPHYSICS (2nd. sem., yearly) | (3) Barry Addition |
| 405-406. MECHANICS (Yearly) | (3-3) Breitenberger Revision |
| 407-408. ELECTRODYNAMICS (Yearly) | (3-3) Vittitoe Revision |
| 409. HIGH ENERGY PARTICLES | (3) Munir Addition |
| 410. ELEMENTARY PARTICLE THEORY | (3) Munir Revision |

- 413, 414. MATHEMATICAL PHYSICS PRACTICUM (Yearly)
(1, 1) Breitenberger Addition
- 415, 416. METHODS OF THEORETICAL PHYSICS (1st. sem., yearly)
(3, 3) Breitenberger Revision
- 419-420. QUANTUM MECHANICS (Yearly) (3-3) Koshel Revision
- 425, 426. ADVANCED THEORETICAL PHYSICS (3, 3) Staff Revision
- 449-450. NUCLEAR THEORY (3-3) Brent, Finlay Revision
460. THEORY OF THE SOLID STATE (3) Chen Revision
461. STATISTICAL MECHANICS AND THERMODYNAMICS (3) Barry Revision
463. ADVANCED SOLID STATE THEORY (3) Chen Revision
- 469, 470. ADVANCED QUANTUM THEORY (3, 3) Dilley Revision
475. ADVANCED NUCLEAR THEORY (3) Koshel Revision
481. RESEARCH (Each sem.) (As recommended by dept.) Staff Revision
- 489, 490. COLLOQUIUM (Yearly) (0, 0) Breitenberger Revision
- 491, 492. SEMINAR IN PHYSICS (1 to 3, 1 to 3) Staff Revision

ZOOLOGY

319. BACTERIOLOGICAL PHYSIOLOGY (4) Staff Addition
442. (Also Chem 442) ADVANCED BIOCHEMISTRY (3) Staff Addition